SEPTEMBER 1961

THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE

FOOD PROCESSING®

Deceptive Packaging —
an objective study 42

AUTOMATION AT FOREMOST

page 38

$1.00 the copy

A PUTMAN PUBLICATION
"Executive Magazines for Industry"

Profitable new uses for Lactose are still being discovered. Are you sharing in the benefits of this versatile product?

Many progressive food processors use Lactose to enhance flavors and aromas, control sweetness levels, aid proper browning and carmelization, and as a free-flowing anti-caking aid. It is used in preserves, spices, barbecue sauce, salad dressing, cottage cheese, candies, baked products, party dips, frozen vegetables, pie fillings, fruit drinks...to name a few. It is now available in a variety of colors, also in pure white.

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ONLY WESTERN CONDENSING PRODUCES EDIBLE LACTOSE IN THE FULL RANGE OF GRANULATIONS REQUIRED BY THE FOOD FIELD!

Now! Fact-filled folder about Lactose and its valuable applications in the food field. Send for yours today!

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181

FOREMOST DAIRIES, INC.
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Foremost lactose

For more information on product at left, circle 7429 see information request blank opposite last page.

One more to bridge

The "obsolescence gap" appears to Robert Sheridan, president of Nationwide Leasing Co., Chicago, as a bigger danger to the U.S. than the more popular space gap.

In 1945, only 38 per cent of industry's equipment was 10 yr-or-more old; today, it's an unhealthy 68 per cent. To correct this, Sheridan urges two immediate governmental steps:

1) permit all equipment to be depreciated by user in 10 yr or less (where less, business would have to present justification);

2) include an "escalator clause" in depreciation laws, so that increased cost of equipment replaced is covered. Currently, costs of equipment replacement are outrunning depreciation allowances by about $6 billion per yr.

that's interesting

Now . . . the purr-fect food!

A whole-milk product, Kit Sip, for cats and dogs is being introduced by Pacific Milk Corp., San Francisco. Consisting of fresh, sterilized whole milk fortified with vitamins D and B-complex and containing a vegetable stabilizer to give it a table-cream consistency, the product is packaged in evaporated-milk type cans. Butterfat content is controlled to protect puss' digestion.

Oink, oink!

Over-indulgence ranks back-to-back (or stomach-to-stomach) with malnutrition as a twin hazard in U.S. nutrition, according to experts at a recent symposium sponsored by The Melamine Council.

Sheer ignorance or lack of discipline have caused 25 per cent of the population to consume so many calories that they are physically sub-par in health and vitality. One-fifth of the nation's middle-aged population is just plain too fat, and nutritional problems in the school-age population stem from over-indulgence rather than lack of food.

At the same time, hundreds in America die and thousands are hospitalized annually due to malnutrition.

Stunning success!

By the end of 1957, only seven meat packers had received American Humane Assn. "Seals of Approval." Today, packers who process nearly 80 per cent of the food animals in the U.S. display the red, blue and yellow seal in their plants.

Six states now have passed laws requiring humane slaughtering methods; many other states are considering such legislation in current sessions.

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Due to advanced scientific and production techniques, Ritter is able to bring you Strawberry Flavor identical to eating the fresh fruit itself.
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CONVENIENCE FOODS

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We feel you will find SPISOSEALS to be the perfect seasoning. We unreservedly recommend their use in your entire line of convenience foods . . . from chicken casseroles to instant potatoes, from chow mein dinners to frozen pies. **Try SPISOSEALS in your products.**

Write for copy of SPISOSEALS brochure: D&O Dry Materials Division, 249 Goffle Road, Hawthorne, New Jersey.

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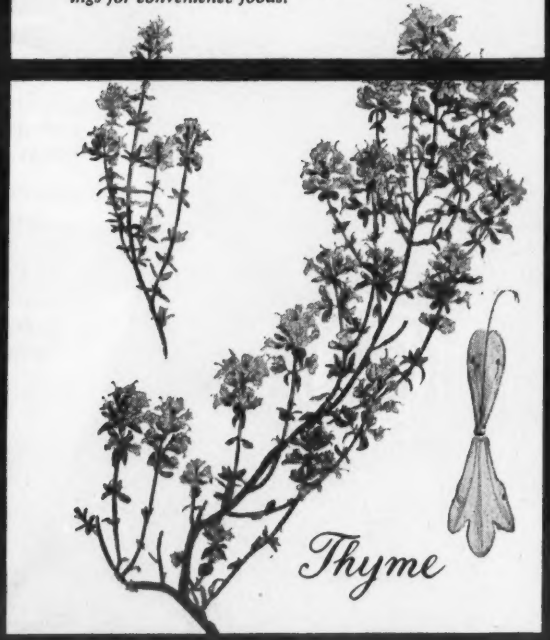

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DRY FLAVORINGS
AND SEASONINGS

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over the editor's shoulder

NEW ADDITIVE KEEPS FOOD FRESHER
SOC SANITUM
MAIL
CONSUMER BENEFITS FROM MOLD INHIBITOR
DEAR CONSUMER WE ARE MAKING A CONSTANT EFFORT TOWARD BETTER FOODS AND LOWER COSTS.

This cartoon is part of a feature presentation originally scheduled for this issue. In this presentation, now scheduled for a future issue, the problem of working with uninformed consumers is considered in some detail as promised in last month's article on consumer counseling.

This presentation also considers how informed technologists can help prevent the consumer counsel movement from becoming a backward force.

These problems in more effective communication are still most timely. But how are we to convey to the public that scientific and technological advances are benefiting them when the big story of the industry is the widespread deceptive packaging and cheating going on — see news report on page 13, also page 42.

In a future issue we will again pursue the problem of more-effectively communicating to consumers. But first let's realize how serious the immediate problem is for industry to set its house in order and keep it that way.

Howard P. Millwille

EDITOR

THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE

SEPTEMBER 1961
VOL. 22 NO. 9

FOOD PROCESSING

CIRCULATION OVER 39,000

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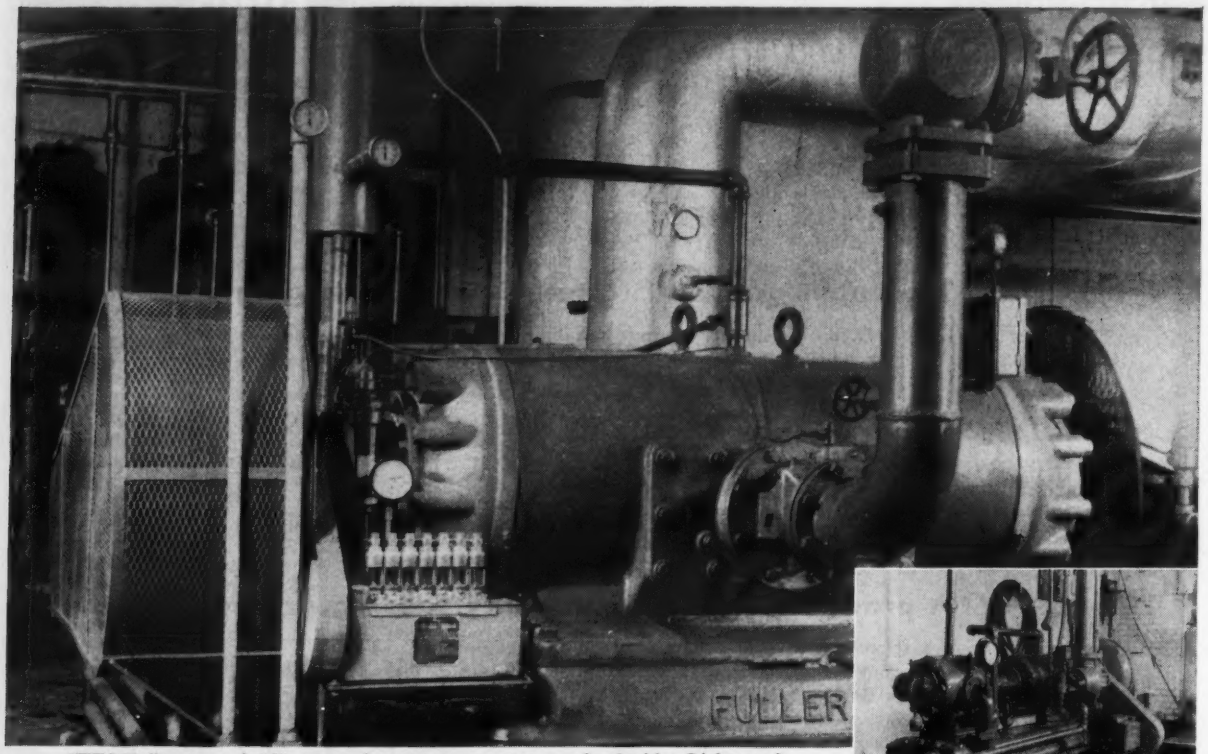
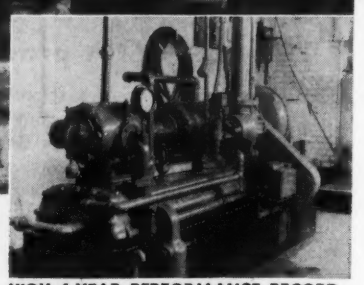
More Proof of FES-FULLER Superiority



"FES-Fuller type A-250 rotary booster compressor nearly doubles Liebmann's freezing capacity," says Herb Liebmann, Jr., of Liebmann Packing Co. Adding 100 tons of refrigeration to 110 tons supplied by existing reciprocating booster, vibrationless rotary takes light foundation—which cuts this installation cost 25%.



HIGH 6-YEAR PERFORMANCE RECORD of this Fuller C-50 rotary compressor supplying plant air led Liebmann to investigate and buy FES-Fuller rotary booster unit. Design principle is identical with that of booster units, using only 3 moving parts: rotor, sliding vanes, and bearings.

"VALVELESS" ROTARY BOOSTER COMPRESSOR CUTS INSTALLATION COST 25%

Designed without suction or discharge valves, an FES-Fuller rotary booster compressor can work more efficiently at low pressure and high gas volume than comparable types. Thus, in a two-stage system like the one at Liebmann's Green Bay, Wis. plant, even very low pressure differences can't hinder its output. Efficiency actually *increases* when system pressure drops.

Liebmann discovers extra benefits. "We wanted a compressor to handle high volumes of low-pressure suction gas in the primary phase of our recently expanded freezing system. The machine had to be rugged and trouble-free, keep original capacity for life, and be easy to install," states Herb Liebmann. Besides meeting these specifications amply, the 100-ton FES-Fuller unit takes only 10 x 12 feet of engine-room space, and cuts estimated installation cost by 25%. A light foundation is all that's needed, since rotary compressors work without vibration.

Advantages like these can be yours with FES-Fuller rotary boosters. Their simple, compact design gives big savings in space, power, money and maintenance time. They can run with almost no supervision. Patented jacket cooling of FES-Fuller rotaries eliminates freezeups. Consult FES-Fuller on the best ways to add to your freezing capacity or to design profitable new facilities. Freezing Equipment Sales engineers are always ready to help you. Write today for information and detailed literature on FES-Fuller rotary booster systems.

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FOOD PROCESSING

(Food Processing Preview)

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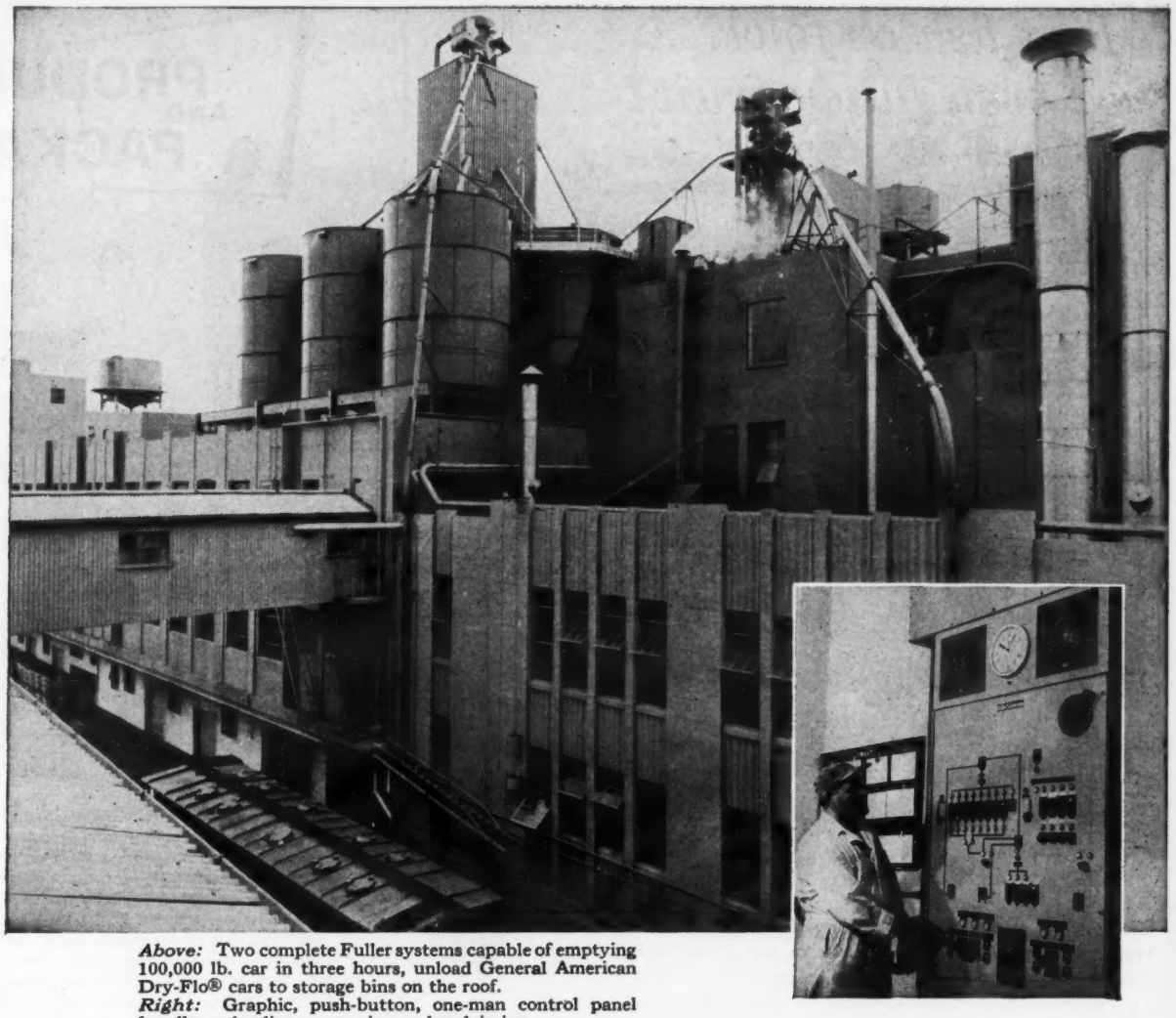

Above: Two complete Fuller systems capable of emptying 100,000 lb. car in three hours, unload General American Dry-Flo® cars to storage bins on the roof.
Right: Graphic, push-button, one-man control panel handles unloading, conveying and reclaiming.

NO PLACE TO GROW BUT UP

. . . so Burgermeister put 12 new storage bins on the Brewhouse roof

Putting a head on beer is one thing, but putting a head on the Brewhouse roof might seem an insurmountable obstacle. This growing San Francisco brewery was up against it for storage space. With no further room for lateral expansion, the only place to grow was up—but how? Could additional bins be loaded at such a height?

Fuller engineers were able to provide the answer. Airveyor® Pneumatic Conveying Systems don't balk at height. So twelve additional bins were mounted on top of existing equipment, and two separate Airveyor systems were installed. They even incorporate components from an existing Airveyor system which had been installed in 1947.

Now, with ample storage space, grits are unloaded from covered hopper cars to bins in just over three hours per 100,000-lb. car. The same quantity of malt travels the route in a little over two hours. And reclaiming and blending are handled at an equally high rate—all controlled by one man at a Fuller graphic control panel. Burgermeister has greater production with greater economy — as breweries must do to keep ahead today.

The success of Fuller in handling problems like those at Burgermeister is confirmed by repeat orders from customers everywhere. Breweries nation-wide look to Fuller to study their needs for expansion, higher production and for new brewery installations. Why not find out for yourself why they do it—and what Fuller can do for you? 2525 A-29 2

"See Chemical Engineering Catalog for further details and specifications."

FULLER COMPANY GENERAL AMERICAN TRADE MARK

FULLER COMPANY
176 Bridge St., Catasauqua, Pa.
Subsidiary of General American Transportation Corporation
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Fuller
. . . pioneers in harnessing AIR

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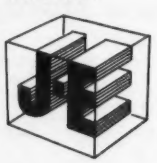
Is it fish or fowl...
or even fancy fruit?

J-E has the plastic package to move it!

Here, at last, is a family of sparkling plastic containers which will propel your product off the counter or out of the freezer or refrigerator right into Milady's shopping cart!

J-E's food containers were designed for you. They can be filled at plus-boiling temperatures and immediately quick frozen without distortion or clouding. Available in rounds and rectangles—from 5 ounce to 16 ounce capacity—J-E containers are fitted with snap-in, snap-on or snap-over lids which require no adhesives or tapes . . . or they can be heat sealed. And J-E hasn't forgotten the store level problems, either . . . lids and pre-cut sheets for heat sealing are recessed to prevent slipping and sliding, even when frozen.



Put more sparkle in your sales with an economical food container of FDA-approved oriented styrene!

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We'll see that you receive complete technical data plus an appropriate sample of a sales-minded J-E container.

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OUR PRODUCT IS_____
PLEASE SEND ME TECHNICAL DATA_____
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PRODUCTS AND PACKAGES

Brilliant image . . .

. . . of quality for Seven-Up and Storz Beer is behind recent adoption by the respective companies of aluminum foil wrap-around labels and foil multi-packs for non-returnable bottles.

The Storz labels, printed in five colors, cover entire bottle body, and are run on a Chisholm-Ryder V-6 labeling machine at about 300 bpm. The foil Cluster-Glass-Pak is printed in six colors on .00035-gauge aluminum foil, laminated to 90-lb kraft.

Seven-Up will use foil spot labels in plants not equipped to handle wrap-arounds. Individual Seven-Up bottlers can choose between the foil Cluster-Glass-Pak or plain paperboard multipacks.

Suppliers: Wrap-around foil labels by Reynolds Metals Co., Richmond 8, Va.

7435 on Reader Service Slip.

Foil Cluster-Glass-Pak produced under license from Mead Corp. by Reynolds Metals Co.

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Cluster-Pak machine by Mead Corp., P.O. Box 4417, Atlanta 2, Ga.

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V-6 bottle-labeler by Chisholm-Ryder Co., Inc., 5380 Highland, Niagara Falls, N.Y.

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Gay for the holiday . . .

. . . specially printed Patapar Brand Vegetable Parchment butter wrapper is lithoed in three colors,

and bears an attractive illustration of a traditional holiday scene on front, plus cookie recipe on back.

Wrapper possesses high wet strength, is resistant to grease, fat and oils and is non-toxic, odorless and tasteless. Customized version — which should be ordered by Sept. 30 — can be provided specially imprinted in one color with the creamery name and address.

Supplier: Paterson Parchment Paper Co., Bristol, Pa.

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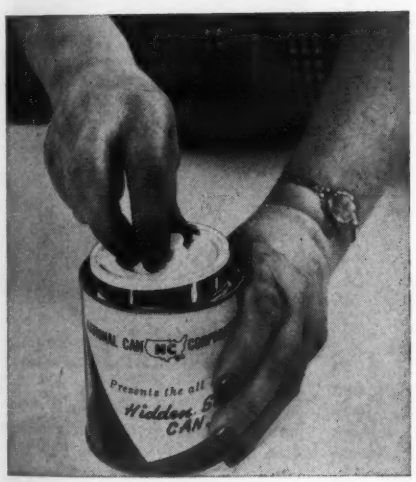
Is this the long-sought

PRACTICAL

RECLOSABLE CAN?



A conventional can opener opens this can! From then on, National Can Corporation's new "Hidden Seal" can becomes a reclosable "canister." It could replace key-openers and some jars for regular and instant coffee, instant tea, instant soft drinks, shortening, peanut butter, nuts and many other foods.

Fairly standard in appearance, the can's secret is the easily removable and replaceable "Hidden Seal" second cap under its regular top lid.

Once the regular lid has been removed, using a conventional can opener, the inner cap or lid — made of either metal or plastic, to suit product requirements — is lifted out by means of an integral knob in cap, leaving no sharp edges exposed.

Can contents are resealed for home storage simply by slight downward pressure with inner lid which snaps over the interior ring of metal that forms a recessed neck for the lid.

Even necessity has been converted into a design advantage. Space allowed for the inner-lid knob causes a raised center on the outer lid.

This fits snugly into the correspondingly raised bottom of another can, thus taking no additional height and making for unusually secure shelf stacking.

Of particular interest to the processor — this can may be gas- or vacuum-packed, and it's available with cemented side seams for wrap around lithography.

Initial public appearance of the new can hasn't been revealed, although two major food companies are reported actively interested — General Foods for Maxwell House Coffee, and Procter & Gamble for a new food product, and possibly later for Crisco shortening.

New! Improves Chocolate!

INTENSITOL

Synthesized Chocolate Flavor Intensifier

Completely new development! Heretofore unobtainable flavor aromatics, produced in our laboratories, will dramatically improve the deliciousness of your chocolate flavored products.

In conjunction with cocoa powder or chocolate liquor, INTENSITOL restores the delicate volatile flavor aromas universally lost during manufacturing processes. This new synthesized chocolate intensifier in your product assures the ultimate in *flavor's richness, taste and aroma.*

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TO AID YOU WHEN SELECTING PNEUMATIC CONVEYING AND BULK STORAGE TANKS

BULLETIN M-260—12 page DAY pneumatic conveying guide just off the press. Discusses types of systems, illustrates and diagrams high and low density arrangements, shows equipment and tells "why" and "wherefore" of all types of pneumatic conveying including so-called fluidizing systems.

BULLETIN 574—12 pages, describes horizontal and vertical storage tanks. Points out savings and is filled with photos of various installations plus description of auxiliary equipment.

Whatever your pneumatic conveying or bulk storage problem, look first in these DAY bulletins. They are valuable aids in selecting and ordering the right equipment for your plant. For your free copies use reader service card of this magazine or write direct toDAY.

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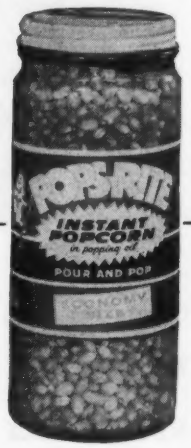


Just pour and pop . . .

. . . Pops-Rite Instant Popcorn, which comes complete with popping oil in economy-size jar. New container, which holds 19 oz of product, will make up to 15 quarts of popped corn, according to manufacturer — Blevins Popcorn Co., Popcorn Village, Nashville, Tenn.

Supplier: Bottles, closures and tacseal by Owens-Illinois Glass Co., 14th & Adams Sts., Toledo 1, Ohio. 7442 on Reader Service Slip.

Unsaturated pretzels . . .

. . . an entirely new variety made with pure corn oil as the only shortening, has been introduced in major Eastern markets by Quinlan Pretzel Co., Reading, Pa. Developed primarily to combine the nutritional benefits of corn oil with the flavor appeal of a pretzel, it was found that the corn oil also enhanced and enriched the "eating" qualities of the product, bringing out the nut-like, "true pretzel" flavor of the other ingredients.

Instant-tutional syrups . . .

. . . in seven flavors are being sold in convenient "ready-to-use" form by Institutional Products Division of DCA Food Industries Inc. Space-saving assorted pack of six No. 10 tins contains one each of strawberry, blueberry, boysenberry, pineapple, spice apple and raspberry. Full cases of each fruit flavor — as well as maple — also are available to the food operator.

For added convenience, a plastic cover with pouring spout is enclosed with each case.

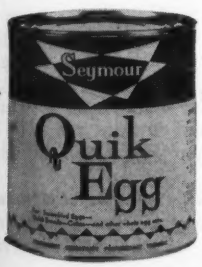
Fold-over flap . . .

. . . on new bacon package is folded **under** when bacon is cello-overwrapped (bottom) — allowing maximum display visibility — then, when cello is removed, it can be folded over bacon and locked as protective cover (top) for storage in home refrigerator.

"Show Pak" thus provides desirable reclosure feature of window cartons, but 50 per cent more visibility for shopper attraction. Material costs — carton plus overwrap — are up to 10 per cent lower than cost of window cartons. Added savings are possible, since package can be run on any overwrapping equipment now used for bacon packaging.

Supplier: "Show Pak" carton, developed by Film Dept., E.I. du Pont de Nemours & Co., Inc., Wilmington 98, Del., produced by Miller and Miller, Incorporated, P. O. Box 865, Atlanta 1, Georgia.

7443 on Reader Service Slip.



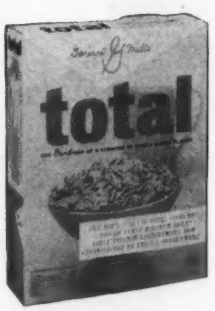
Instant scrambled eggs . . . . . .

. . . to completely replace shell eggs in scrambled egg servings, and frozen whole or shell eggs in baking are being introduced by Seymour Foods, Inc., Topeka, Kans.

"Quik Egg" reportedly has "country-fresh" taste, requires no refrigeration and only 25 per cent of shell egg storage space — plus much less preparation time. Each one-lb can (and 6½ cups of water) yields 30-35 scrambled egg servings. Complete conversion table is printed on each can.

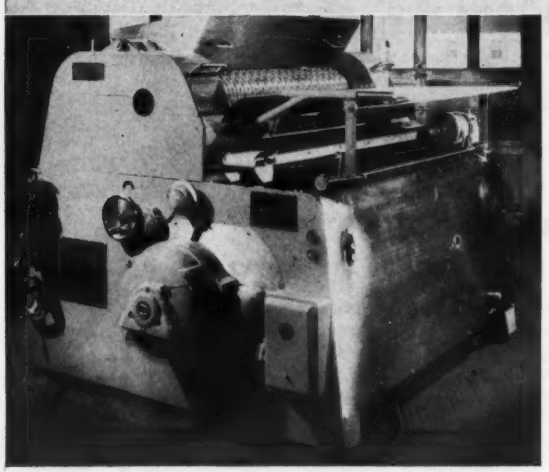
Summing it all up . . .

. . . in the minimum-daily-adult-vitamin-requirement category, it comes out "Total," new wheat flake cereal introduced by General Mills on a limited-market basis. One oz provides a 24-hr supply (minimum-required) of every known vitamin need — reportedly the only food that combines complete vitamin adequacy with few calories and low fat content.



THERE ARE NEW TRICKS IN EVERY TRADE!

And many successful food processors (dog foods, cereals, pretzels, crackers, etc.) have found that the addition of automatically controlled WERNER BAKING EQUIPMENT has improved production, increased profits and stepped up the efficiency of their entire operation!



WHATEVER YOU BAKE . . . it would be to your advantage to investigate the difference WERNER efficiency-engineered equipment can make for you!

WRITE FOR illustrated field reports of Werner installations—indicate your particular field of interest.

VISIT THE WERNER ACTION DISPLAY AT THE 1961 Baking Industry Exposition, Oct. 7-12, Atlantic City

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conventions and exhibits

Sept. 15-19. American Meat Institute, annual meeting, Palmer House, Chicago.

Sept. 25-28. Institute of Sanitation Management, annual conference and show, Sheraton Hotel, Philadelphia.

Sept. 26-27. Research and Development Associates, Third Military-Industry Conference (freeze-dried and flexibly packaged food — progress and problems), La Salle Hotel, Chicago.

Oct. 7-12. American Bakers Assn. and Bakery Equipment Manufacturers Assn., 1961 Bakery Industry Exposition, Convention Hall, Atlantic City.

Oct. 18-20. The Packaging Institute, 23rd annual national Packaging Forum, Biltmore Hotel, New York.

Oct. 21-25. Midwest Feed Manufacturers' Assn., Centennial Nutrition Conference, Hotel Muehlbach, Kansas City, Mo.

Oct. 24-25. Fifth Milk Concentrates Conference, Dept. of Food Technology, University of Illinois, Urbana.

Oct. 24-27. American Dietetic Assn., annual meeting, Jefferson Hotel, St. Louis.

Oct. 30-Nov. 1. American Oil Chemists' Society, fall meeting, Pick-Congress Hotel, Chicago.

Nov. 5-8. National Frozen Food Assn., annual meeting, Bal Harbour & Americana Hotels, Miami Beach.

Nov. 7-10. Packaging Machinery Manufacturers Institute, 1961 Show and concurrent (Nov. 8-9) Conference Workshop, Cobo Hall, Detroit.

Nov. 13-16. American Bottlers of Carbonated Beverages, 43rd Convention, and concurrent 1961 International Soft Drink Exposition, Brooks Exhibit Hall, San Francisco.

food regulations

FDA widens crackdown on short-weight, improper labeling

99 companies hit by seizures in month; Quaker, Snow Crop, Tootsie Rolls hardest hit by publicity

FDA'S ENFORCEMENT procedures went into high gear early in August in the agency's crackdown against food products that are short-weight or carry false or misleading label statements. Some 99 product seizures were undertaken just in the month ended Aug. 10 and the agency has officially announced it is expanding its crackdown.

Most of the publicity so far about the crackdown has focused on four products — Quaker Oats' Puffed Wheat and Puffed Rice, Minute Maid Corp.'s Snow Crop frozen concentrated orange juice, Sweets Co.'s Tootsie Roll candy — reviewed separately below.

But the full scope of the seizures covers many major food categories: mushrooms, tea, peanut butter, prepared fruit, candy, olives, noodles, beans, syrup, shoestring potatoes, nuts, spices.

FDA says the seizures are the result of "improper labeling" of one sort or another. This might be short-weight, incomplete ingredient statements, too small a type size for required wording, or other improper labeling practices.

"For several years," comments FDA Commissioner George P. Larrick, "we have not been able to give adequate attention to honest packing and prominent labeling in the food field because of the pressure of other duties. Through educational efforts and a limited number of regulatory actions, we have tried to keep industry aware of its responsibilities.

"However," he continues, "from several sources we have reports of continued abuses and these are being borne out by the survey now under way.

"These abuses must be corrected," he emphasizes.

The advent of this more rigorous enforcement against short-weight practices was specifically predicted in the July, 1960, FOOD PROCESSING which reported earlier studies FDA was then making of short-weight packaging.

TOOTSIE ROLLS — New size, old labels

The latest major food processor to be hit by FDA's campaign against short-weight packaging is the Sweets Co. of America, manufacturer of Tootsie Rolls candy. FDA received a U.S. District Court temporary order restraining the company from shipping Tootsie Rolls in interstate commerce.

FDA contends that the company's "Multi-Pak" carton containing six individually wrapped candies contains only 8¼ ounces although it is labeled at 9 ounces. FDA also charges that individual packs intended for vending machine distribution are short weight.

The agency says that the Sweets Co. reduced the size of the pieces of candy early this year, but continued to use the old labels carrying the higher weight. This despite FDA warnings, says the agency.

QUAKER OATS — Unrevised weight claims

FDA is showing Quaker Oats Co. no mercy in seizing short-weight packages of Puffed Wheat and Puffed Rice before Quaker can call them off the shelves.

Often, FDA makes a single seizure then allows a violator time to get the products off the shelves. FDA is moving against the Quaker products as rapidly as officers can find them in stores and warehouses.

Why the vigorous campaign against Quaker? Says Deputy Commissioner John L. Harvey: "Although the company was aware of the short-weight problem as early as April, 1961, it continued distribution of the short-weight packages until action was taken by FDA."

Through early August, the agency had made 75 seizures. FDA at that time expected even further seizures.

Quaker Oats' troubles stem from a new process inaugurated early this year at its plant in Shiremanstown, Pa. The process puffs grains of rice and wheat to a larger volume than did the former technique. There is no change in weight and the resulting package, although full, contains less cereal than indicated by the label.

FDA learned that a high official of the Shiremanstown plant early this year informed the company's home office of the violation caused by the new process. However, says the agency, the home office ignored the plant official and the plant continued to ship the short-weight packages.

Harvey says the monthly volume of Puffed Wheat and Puffed Rice from the Shiremanstown plant is valued at over $200,000. In a statement to newspapers, the Deputy Commissioner pointed out that the short weighting practice "could result in about 10 percent extra profit for Quaker."

The company has halted use of the new process at Shiremanstown and the plant, the

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only one using the process, has reverted to the former technique. Quaker has overprinted the correct net weight on packages already filled with the larger puffs of grain.

SNOW CROP — Unsupported value claims

The cost to Minute Maid Corp. of complying with FDA regulations following FDA's seizure of Snow Crop frozen concentrated orange juice has been estimated upwards of $1 million. This minimum figure came out in conversations between Minute Maid lawyers and FDA officials.

Minute Maid already has recalled the entire 1961 pack of Snow Crop. An FDA official admits that re-labeling is almost impossible since the juice cans are lithographed. Paste-on or wrap-around labels generally are not practical for the frozen product. The question at issue now between FDA and Minute Maid, owned by Coca Cola, is one of what to do with the recalled product.

FDA seized 786 cases of Snow Crop at East Point, Ga., on violation of sec. 343(a) of the Food, Drug, and Cosmetic Act — mislabeling. FDA object to the lithographed labels as well as recent advertising which reads: "Urgent News For Mothers. The natural Vitamin C in 100% richer Snow Crop Frozen Orange Juice helps your children to fight flu and resist colds."

FDA contends that the advertising creates the impression that the product will improve health, increase energy, help fight disease, and resist infection. The agency states that the label declaration, "100% richer in visible flavor cells," is false and misleading since the flavor of orange juice is in the soluble portion of the product and the pulp contains no "flavor cells."

FDA also challenges the la-

continued on p. 16

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continued from p. 14

bel statement: "Equal to the juice of up to 12 oranges." FDA claims that a can of the product does not contain the juice of 12 oranges, but more nearly six.

Watered ham tempest mushrooming into major industry problem

The ham moisture issue, still unresolved, may mushroom into a much bigger issue with far greater impact on all areas of food processing. The issue and its arguments have attracted attention far beyond the Agriculture Department. It is being followed with deep interest — sometimes official interest — at FDA, the Federal Trade Commission, the Justice Department, and even in the White House.

In almost all cases, observers see the "watered ham controversy" leading to far-reaching changes in regulatory thinking. Out of former Agriculture Secretary Ezra Benson's seemingly simple regulation may grow new definitions of interstate commerce, increased jurisdiction for the FDA, and even court decisions that will move the Federal government farther into state and local activities.

The ham controversy is one of Agriculture Secretary Orville L. Freeman's biggest political hot potatoes. No matter which way he moves on the issue, he is politically trapped. Freeman knows this, has told President Kennedy. With White House approval — some say at the White House's suggestion — Freeman has moved to get himself at least partly off the hook.

The Secretary of Agriculture appointed a special committee to review the results of the department's investigations of the issue and to comb testimony gathered in public hearings held around the nation. Even two months after the hearings ended, and nearly six months after Freeman picked up the hot potato, the secretary has not been able to resolve the issue. Chosen to do this for him was Sydney Berde, Minnesota's deputy attorney general. Co-members of the Berde committee are Miss Reba Stagg, director of the Department of Home Economics, National Livestock and Meat Board; and Dr. W. C. Cole, professor of animal husbandry and meat technology, University of Tennessee.

The relatively new injection curing process leaves up to 30% moisture in processed hams. Some *intra*state processors, not bound by Federal inspection, had been selling heavily watered hams. Interstate dealers, required to remove moisture by heat treating, complained that they could not compete. Former Secretary Benson, just before leaving office, issued an order permitting the retention of up to 10% of the added moisture in interstate hams.

Consumer groups immediately complained. One of Secretary Freeman's first actions was to reopen the issue and order public hearings.

The consumer arguments against watered ham are obvious and traditional: the consumer is paying for water. To this point industry answers that a reasonable quantity of added water has genuine economic advantages for the consumer, that it makes hams more tender, juicy, and flavorful, and that it reduces cooking time, thus preserving nutritive value that would otherwise be cooked out.

The *inter*state processor members of the industry have impressed the new Agriculture Secretary with the point that the former limitation on them concerning watering ham was forcing them to gradually surrender the ham market to *intra*state processors who weren't under that limitation. They have also emphasized that the lack of Federal inspection of local processors results in more uninspected hams — an undesirable situation for consumers.

Here are the probably farther-reaching results of the controversy, some of which may be recommended by the Berde committee:

1. FDA may be moved into the meat inspection area with powers to police new moisture regulations.

2. Money will be alloted and an office set up to draft a uniform state inspection code, patterned on Federal codes, and Federal funds and auspices will lobby the states for passage.

3. New definitions of interstate commerce, applicable to meats, will be drawn to permit inspection of local processors who will flourish after the Benson order is rescinded, if it is.

4. Added moisture will be permitted in hams specifically labeled as "watered" and subject to new FTC and FDA labeling and advertising controls in addition to USDA regulations.

Most observers here are betting on a combination of labeled watered hams, and a new definition of interstate commerce to police local processors who might abuse the watering privilege.

FDA overcomes 'hazard' of turpentine; its budget restored by Senate unit

With a Senate Appropriations Committee budget axe over its head, FDA has reexamined the turpentine situation and decided that it really isn't such a hazardous substance after all, that turpentine labels don't have to carry a skull and crossbones and the word "poison." The word "danger" would suffice.

The Senate committee has also reexamined FDA's fiscal 1962 budget and restored the $1.5 million it lopped off earlier.

The *quid pro quo* originated when FDA designated turpentine a "hazardous substance" and required turpentine labels to show a skull and crossbones and the word "poison." Several score Congressmen, including at least 14 senators from southern naval stores states, have been riled at the requirement, calling it limiting and unnecessary.

Opportunity for reprisal on the agency came up when the agency asked Congress for

$25.4 million for its fiscal 1962 budget. The House approved this figure but the Senate Appropriations Committee lopped off $1.5 million, saying only that "Administrative procedures adopted to carry out new responsibilities are questionable." Presumably the change in turpentine label requirements resolves whatever was questionable.

Budget Politics

So strong is the turpentine block that naval store lobbyists persuaded the Senate group to hold a private meeting prior to FDA's public hearings on the new hazardous substances labeling law. At the pre-hearing meeting were 14 senators or their delegates from Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Texas; a number of representatives; Downing Musgrove, representing the turpentine industry; and Health, Education, and Welfare Secretary Abraham Ribicoff. The meeting was arranged by Sen. Richard B. Russell (D., Ga.), Sen. Herman E. Talmadge (D., Ga.), and Sen. Lister Hill (D., Ala.). A week later, FDA resumed its actions to implement the new law, and turpentine was among the products listed as hazardous. Then, a week later, the Senate Appropriations Committee cut $1.5 million from FDA's budget.

The committee's sudden impulse to economize on FDA's budget — recommending only $23.8 million instead of the $25.4 million sought by the Budget Bureau and approved by the House — recalled the days when Rep. Taber (R., N. Y.) chaired the House Appropriations Committee that cut FDA's budget for two years. One year FDA had seized a shipment of mouldy berries shipped by one of Taber's constituents. In another year, FDA took action against a man who shipped "baby beets" which were in fact the cores of mature beets.

The budget cutting actions at that time may have hurt FDA, but they gave no relief to erring shippers.

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Vanilla extract standard expected this fall

The long awaited food standard for vanilla extract will be issued before the end of the year. FDA officials believe it may be ready in the fall.

No responsible official at FDA will speculate on the nature of the standard. At issue is the choice between the McCormick Co. proposal and a proposal from several other members of the vanilla extract industry.

McCormick, Baltimore, recommended that the amount of vanilla bean be expressed on a solids basis. The value should represent the weight of the dried bean.

Other firms proposed that the vanilla bean weight represent the whole bean. The moisture should be included.

New chick edema factor pondered by industry, FDA

FDA has found a new chick edema factor in fats. The new factor has not yet been isolated and is related to the already known factor only by symptoms. One difference between the old and new agents is that the new factor is not toxic to rats.

The new factor was found in a drum of fatty acid destined for food additives use and seized in Chicago. The manufacturer, Emery Industries, Inc., Cincinnati, had examined the product for chick edema factor, using the FDA-approved bio-assay in effect at the time. The test showed the fat to be free from chick edema factor.

Subsequent to shipping, but prior to use in additives, the fat was examined in FDA's regional laboratory. FDA used the new bio-assay discussed last October at a meeting of the Assn. of Official Agricultural Chemists and described in detail in the Feb., 1961, *Journal of the AOAC*, p. 146. The new FDA-approved test, "Biological Assay Method For Determination of Chick Edema Factor," revealed the new factor toxic to chicks.

Food processing industry

continued on page 22

Association News

Processed Apples Institute, Inc.

has elected as president James J. Tormey, vice president-sales manager, Lyndonville Canning Co., Inc., Lyndonville, N. Y.

American Assn. of Cereal Chemists

will administer an annual scholarship award newly established at the University of Minnesota by Sterwin Chemicals Inc., to honor its retiring vice president and technical director, Dr. Reginald C. Sherwood. The scholarship fund will provide an annual grant to a graduate student in agricultural biochemistry, in which Dr. Sherwood took his Ph.D. at the University in 1925.

He is known for his active role in developing a new system for supplying flour millers with chlorine dioxide (a flour maturing agent), for developing the first commercial process for fortifying wheat flour with diastatic enzymes contained in malted wheat (to improve baking quality), in developing a new process for synthetic production of vitamin D and in developing and launching the U.S. food enrichment program.

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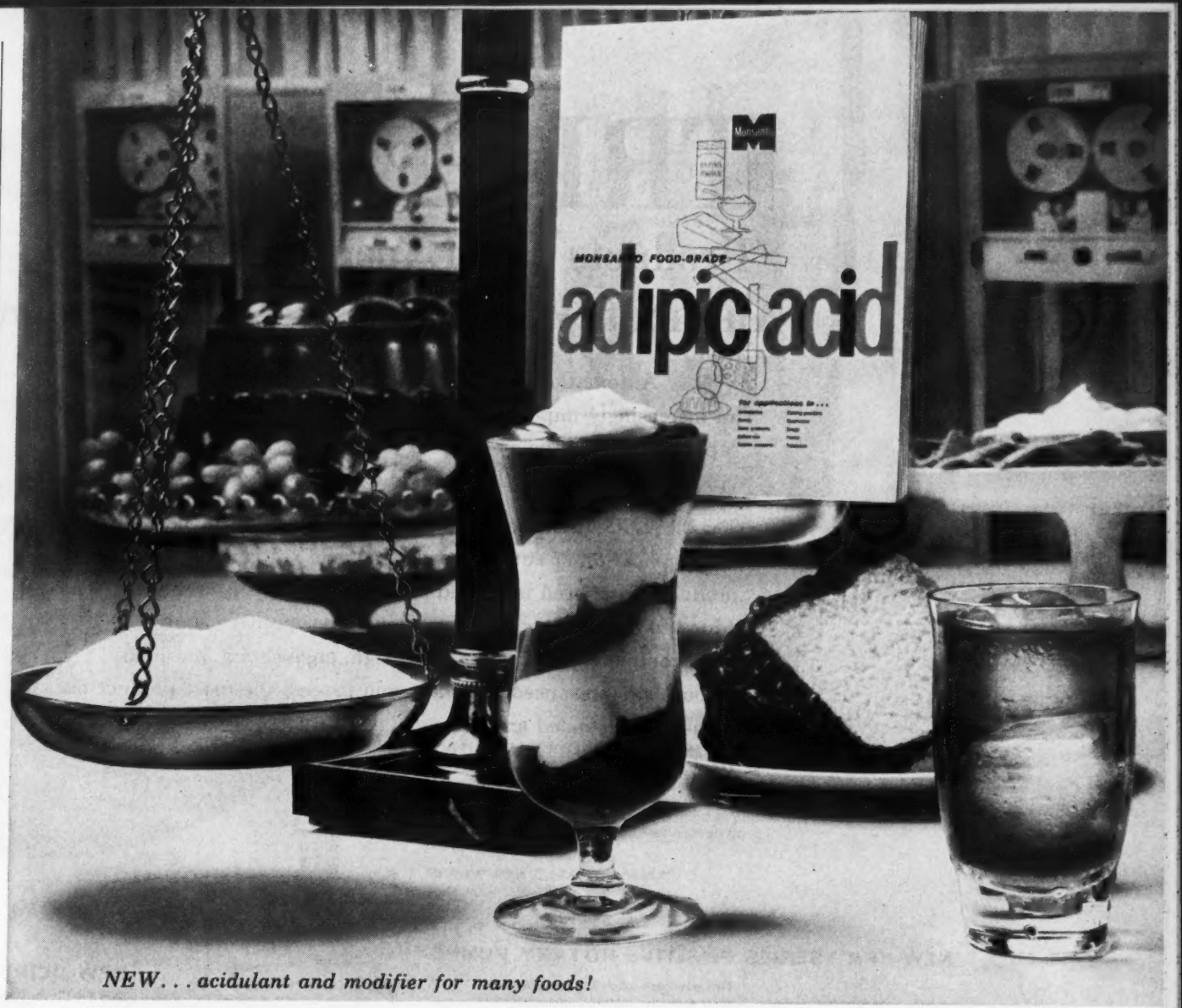

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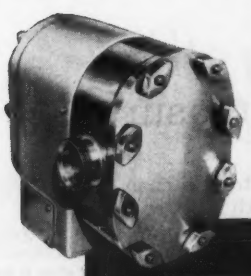

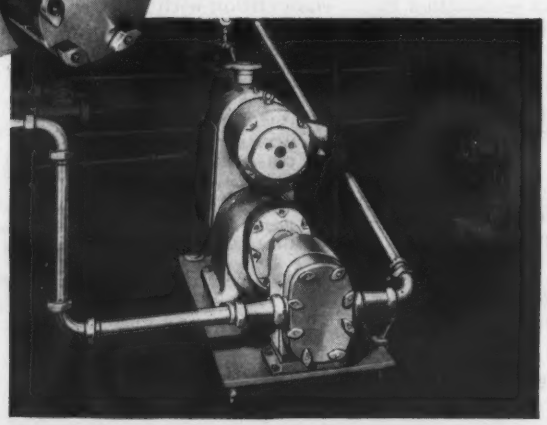

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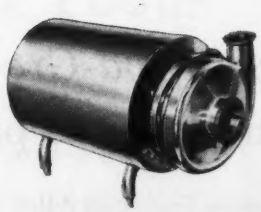

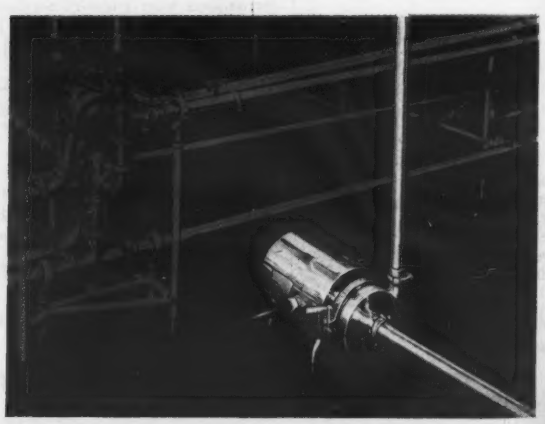

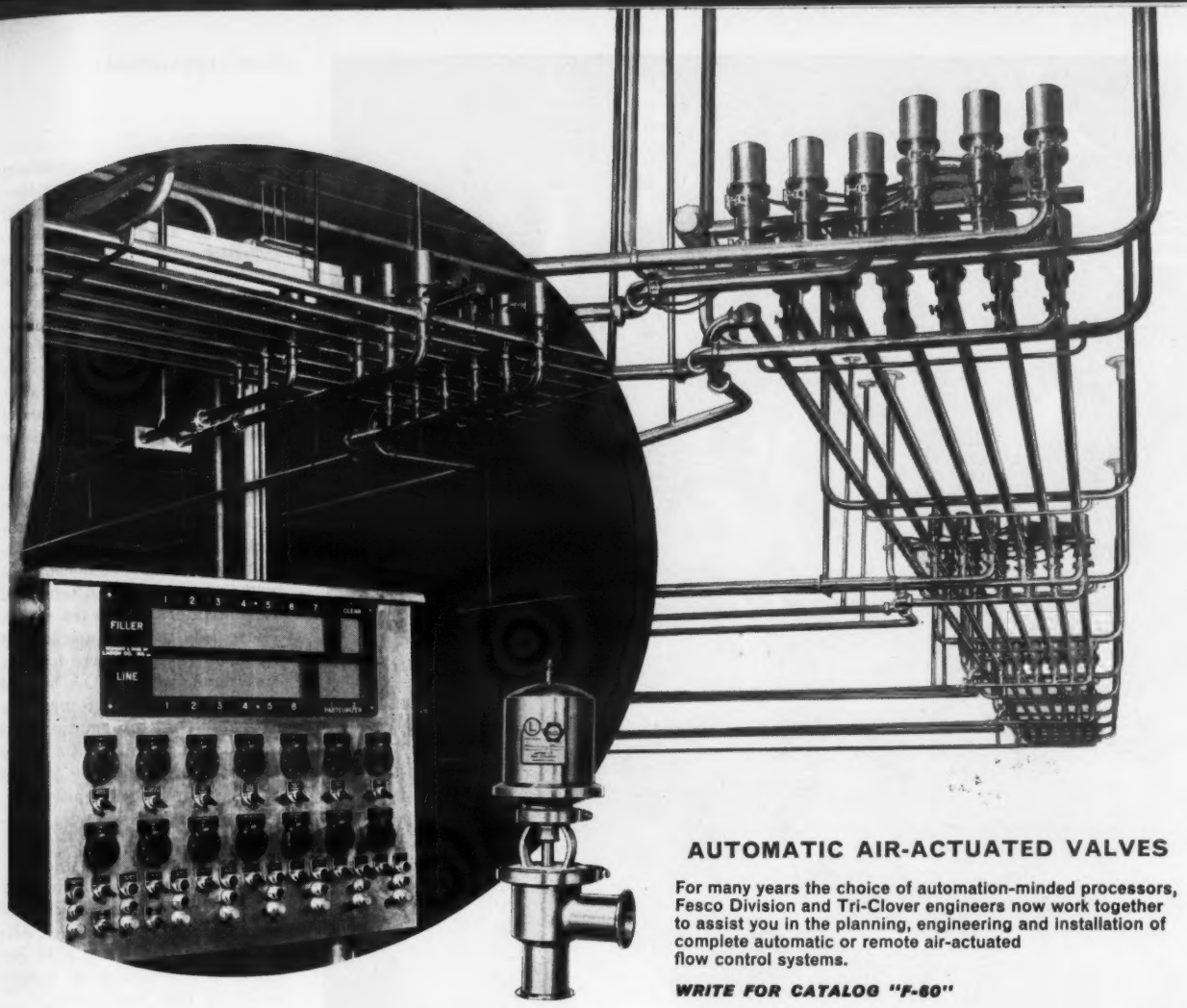

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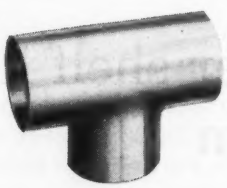

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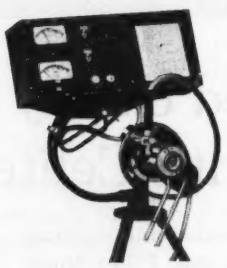

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continued from p. 19

laboratories are cooperating with FDA in developing further data on the origin and toxicology of the new factor. The first effort is to determine the factor's relationship to the original chick edema factor.

Emery Industries has volunteered further samples of the fatty acids in question. The company's scientists are participating in FDA's program of research on the chick edema factor.

The program is not new, although it was little known until the discovery of the new factor brought it public attention. In 1956, FDA became interested in cooking fats used at roadside hamburger stands. These fats usually are kept at elevated temperatures for several days. When FDA learned that they had been found toxic to rats, the information was considered a valuable addition to knowledge of toxic fats but of no regulatory significance.

However, early cancer workers frequently alluded in their literature to a possible carcinogenic action of heated fats. For this reason FDA performed some purely basic studies. After many separations, FDA isolated a fraction from cottonseed oil that was toxic.

Then occurred the disastrous chick edema epidemic of 1957. Over a million chickens, mostly in the midwest, filled with fluid and died. Then the new practice of incorporating fat into chicken feed was believed responsible.

FDA points out that there never was any quarrel with fat-filled feeds; they do demonstrate certain advantages of weight gains per unit cost. However, the feeds involved in the epidemic contained fatty acids from industrial processes such as the manufacture of rubber, asphalt, and lubricants. Fat residues from first distillations are relatively high grade and now are often used in feeds. Residue from second distillations usually is good only for highway surfacings, and third residues generally are considered low grade wastes. However, it was third residues used in feed that caused the 1957 epidemic.

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JOHNS-MANVILLE

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basis since 1957 — FDA has conducted its research on chick edema and on fatty acids. Last October's outbreak of chick edema in Georgia apparently involved rendered fats rather than distilled fats. This completed the cycle back to the original studies of heated fats at hamburger stands.

So far, neither FDA nor industry investigators know whether either the original chick edema factor or the new factor is toxic to humans. However, tests already have shown that flesh from chickens afflicted with the first discovered factor will produce edema in chickens that eat it.

FDA plans approval of oxystearin in dressing

FDA plans to permit use of oxystearin as a crystallization inhibitor in salad dressings. The agency has published an amendment to the definitions and standards of identity for mayonnaise, french dressing, and salad dressing to permit the use of salad oil containing oxystearin.

No comments were received after FDA first published a notice of its proposed rule-making (Federal Register, March 11). The amendment was requested by Procter & Gamble Co., Cincinnati. It will permit use of salad oil containing up to 0.125 percent oxystearin by weight.

The amendment will probably take effect July 1.

FTC surveys distributors to chart frozen foods marketing pattern

The Federal Trade Commission is querying the country's wholesale distributors of frozen fruit, juices, and vegetables in an effort to establish distribution patterns below the wholesale level.

The questionnaires, which must be answered by Sept. 30, are similar to those mailed a year ago to packers of frozen fruit and vegetables. The FTC is attempting to ascertain how much of 1959 sales were made to the ten largest chains and

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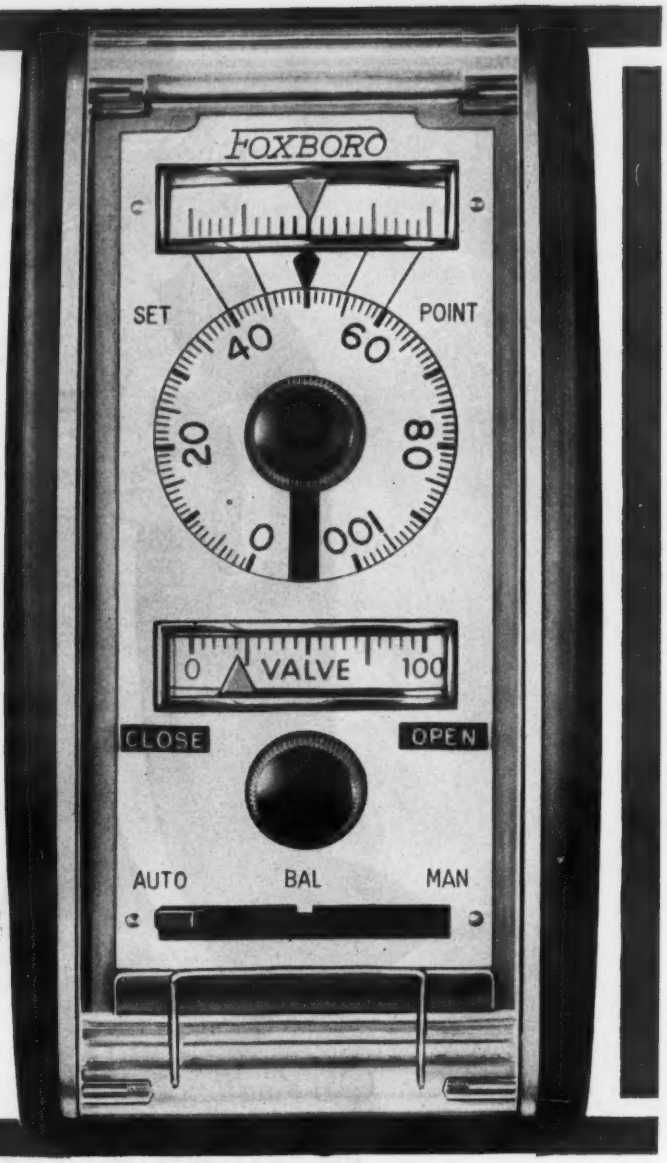

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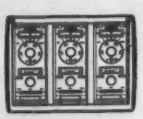

Standard 9" x 6" housing holds 3 control stations, or 1 station with a companion recorder.

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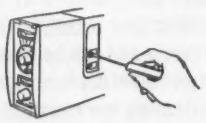

Proportional — reset — derivative: all adjusted from the front.

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other grocery outlets and how much to institutional and other nonretail outlets.

Each distributor must report his 1959 sales by classification and, in addition, the distributor must specify whether the products bore the packer's brand, customer's brand or his own label.

USDA urges dual grading system for beef animals

USDA's marketing service has suggested that a numeral value be added to the quality grade on beef carcasses to indicate the different yields of retail cuts and different waste amounts of beef within the same grade.

USDA experts cite a recent demonstration of this differing value. Two beef carcasses of the same weight, carrying the same quality grade, actually differed widely as far as the food retailer was concerned. One of the carcasses was worth $70 more to the retailer because of a greater yield of retail cuts and smaller amount of waste fat.

Packer's Laboratory fined $1500 for salting monosodium glutamate

A small amount of table salt added to monsodium glutamate has brought a $1500 fine to Packer's Laboratory, Boston, and its president-treasurer, Robert A. Poling. Poling pleaded guilty to charges of adulteration and misbranding.

The government charged that Packer's Laboratory had added 10 percent low-priced salt to the more expensive MSG.

Sea Brine is a food, may be marketed, court rules

The Federal court for the southern Florida district has ruled that Sea Brine, a food seasoning made from concentrated Atlantic ocean water, is a food and therefore qualified for distribution and sale in interstate commerce.

FDA has objected to the

marketing of the product, made by Florida Sea Brine Laboratories, Inc., Lakeland, Fla., on grounds the product was mislabeled a drug. The agency had won a temporary injunction staying the marketing of Sea Brine, but this injunction has now expired.

The marketer had, in fact, previously labeled the product a drug, but dropped the word from its labels some months ago. The court's ruling that the product is a food in any event disposes of FDA's basic case as it has been made so far.

Florida Sea Brine Laboratories now plans to introduce two new products — Sea Brine natural unrefined sea salt, Sea Brine salad dressing.

FDA again to ask power to inspect processors' files

FDA is planning to ask Congress for new inspection powers: authority to inspect not only food processing plants as they now do, but also to inspect all records, files, papers, processes, and controls.

A similar request was made last summer and again this past January by the Eisenhower administration.

Development begun on new food additives 'bible'

Development of an authoritative reference work on the safe use of food additives, comparable to the *U.S. Pharmacopeia* and *National Formulary*, is being jointly undertaken by the National Academy of Sciences' Food Protection Committee and the Toxicology Study Section of the National Institutes of Health.

The result, to be called the *National Food Chemicals Codex*, will be a source of information on methods of analysis and standards of identity and purity of chemicals used as intentional additives in food. Its development will be under the direction of Dr. Justin L. Powers, who recently retired as director of revision of *National Formulary*.

Financing for the work has come from a $50,000 grant from

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add nutrition-flavor sales appeal to your product with Lake States® or Bakon® (hickory-smoked) Torula Yeast

Which will spark more sales of your product... *flavor or nutrition?* Lake States offers you a choice of two ingredients: nutritional Dried Torula Yeast and flavorful hickory-smoked Bakon Yeast. At economical cost, Lake States can help you boost your share of the market with a *new* or *improved* product.

LOW COST NUTRITION WITH TORULA YEAST

If your product already possesses a desirable taste, you can increase sales at low cost by adding Lake States Torula Yeast as a nutritional ingredient. Many food and drug manufacturers already use Torula either as an ingredient or as a base to attain a higher nutritional level in their products. Some examples: baby foods, institutional foods, seasoning blends, pharmaceuticals.

Your product can reap the sales value of important nutritional factors with Lake States Torula Yeast. Torula is high in protein (50% minimum), a rich source of lysine and all the amino acids of meat; Torula is a reliable source of the entire vitamin B complex, also containing essential minerals such as calcium, iron, phosphorus and iodine.

Food technologists appreciate the fact that Lake States Torula Yeast is produced from sterile media under vigorous and constant quality control. Thus, Torula is noted for its purity, uniformity, stability and long shelf life. Torula blends well with most products and is bland in flavor.

EXCEPTIONAL FLAVOR WITH BAKON YEAST

Perhaps the strongest sales appeal of your product is taste. If you would like to enhance your product's flavor, or if your product needs a new taste, consider the genuine hickory-smoked flavor of Bakon Yeast. A number of leading food processors have found hickory-smoked Bakon Yeast an ideal flavoring ingredient (and high in nutrition, too) for their products. Examples: baby foods, cheeses, spreads, nibbling foods, crackers, stews and vegetables, soups, spice mixes and seasoning blends. Taste tests have disclosed Bakon Yeast to be superior to even a natural bacon flavor.

DUAL VALUE OF BAKON YEAST IN MARKETING A PRODUCT

Bakon Yeast is 100% hickory-smoked Dried Torula Yeast and as such contains all the nutritional values of Torula. This presents your product with a *double value* which your marketing experts can put to optimum advantage: flavor plus.

Bakon Yeast, Inc., the original producer of smoked yeast, has joined Lake States, America's pioneer and leading producer of Torula Yeast. With expanded production facilities at Rhinelander, Wisconsin, Bakon customers are assured prompt delivery from fresh stock. Nutrition from one low cost ingredient... Bakon Yeast. If yours is a specialty product, consider the fact that Bakon Yeast is salt-free and contains no starch, sugar, meat or meat extract; Bakon meets requirements for low sodium diets. Furthermore, Bakon Yeast is stable, uniform, and conforms to all FDA regulations.

YOUR BEST PROOF

The most convincing facts on the advantages of incorporating either Torula Yeast or Bakon Yeast in your product is the aggregate of food and drug firms which are now marketing Bakon-flavored or Torula-enriched products. But make your own test. Send for complimentary test samples (specifying Lake States Torula or Bakon Yeast) to Lake States, Dept. FP

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the Public Health Service of the U.S. Department of Health, Education and Welfare, and from food additives producers. The entire project is expected to take about five years.

STANDARDS OF IDENTITY
Pending

Ice cream: American Food Laboratories, Crest Foods, Dari-Tech Products, E. F. Drew, Germantown Mfg., Kelco, Lanco Products, Milk Proteins, Stein-Hall, and Swift seek revision of standard to permit use of the salts disodium phosphate, tetrasodium pyrophosphate, sodium hexametaphosphate, and sodium citrate. These salts, for use to prevent or retard "churning" or "buttering off" in soft-serve products, would be limited to 0.2% of the weight of frozen ice cream, frozen custard, French ice cream, or ice milk. Limit would be 0.5% of the weight of finished frozen dessert.

Ice cream: International Assn. of Ice Cream Manufacturers seeks revision of standard to permit changing the formula for butterfat and milk solid to lesser quantities when the bulky flavors chocolate and cocoa are used.

Shrimp: Anheuser-Busch seeks revision of the standard to permit use of dried autolyzed yeast extract if it isn't already permitted under the term "hydrolyzed vegetable protein."

Mozzarella, pizza cheese: FDA proposes two separate standards for two types of cheese used in pizza — "mozzarella cheese" (promoted by the Italian Fresh Cheese Manufacturers Assn. as "high moisture mozzarella" or "Italian style mozzarella") and "pizza cheese," promoted by the National Cheese Institute. Moisture content for both part-skim cheeses

would be the same — between 30% and 45%.

Canned potato: Idaho Canning Co. seeks revision of standard to increase the permitted amount of calcium chloride from 0.051% by weight to 0.20% by weight. Company also seeks addition of "French fry cut" as optional form for canned potatoes.

DIRECT ADDITIVES
Clearances

Sauces, dressings: Calcium disodium ethylenediaminetetraacetate (EDTA) cleared for use alone or in combination with disodium (EDTA) in nonstandardized dressings, sandwich spreads and sauces to a tolerance of 75 p.p.m. in dressings and sauces and 100 p.p.m. in the sandwich spread.

Emulsifier: Atlas Chemical Industries' Span 60 (sorbitan monostearate) and Tween 60 (polyoxyethylene (20) sorbitan monostearate) have been cleared for use alone or in combination with each other as an emulsifier in cakes and cake mixes.

Chicken feed: Nystatin has been cleared (Federal Register July 12) for use in chicken feed for prevention and treatment of crop mycosis and mycotic diarrhea and in swine feed as a growth promoted. Clearance had been requested by Olin Mathieson's Squibb Division.

Pesticide: Di-syston pesticide tolerance of 0.75 p.p.m. in or on cottonseed has been cleared (Federal Register July 20).

Starch: Food additive order for modified starch in food amended (Federal Register July 22) to provide for three more methods of modification: with not more than 4% succinic anhydride, not more than 3% l-octenyl succinic anhydride, and not more than 2% l-octenyl succinic anhydride and not over 2% aluminum sulfate.

Binder, plasticizing agent: Polyethylene glycol 6000 has been cleared for use as a binder in vitamin and vitamin-mineral capsules and tablets. The order, requested by Distillation Products Industries, sets limit of 5% on distilled acetylated monoglycerides.

Chickens: Tylosin antibiotic cleared for use in the drinking water of chickens as an aid in the prevention or treatment of chronic respiratory diseases. Lilly's Elanco Products Co. had sought the clearance.

Pesticide: Sodium o-phenylphenate residues of no more than 5 p.p.m. established (Federal Register July 28) in or on cherries. Tolerance was requested by Dow.

Chicken feed: Use of a combination of zoalene coccidiostat and

continued on p. 29

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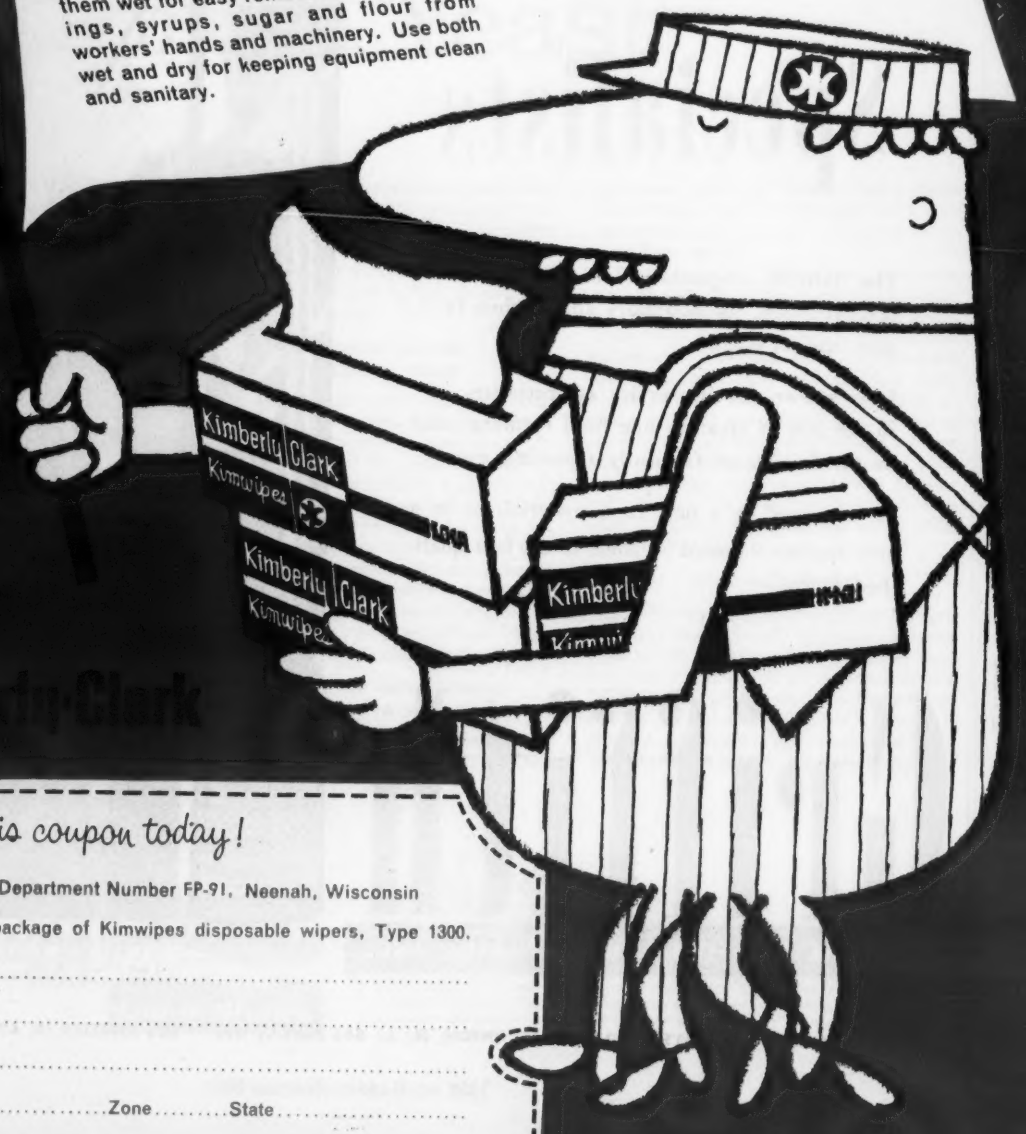

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Association News

Association of Official Agricultural Chemists

has selected Paul A. Clifford to receive the Association's 1961 Harvey W. Wiley Award. Formerly assistant to the director of the Bureau of Biological and Physical Sciences of the HEW, and currently consulting editor of the A.O.A.C. Journal, Clifford was recognized for his more than 30 yr of outstanding research on determination of heavy metals in biological materials, and on methods for determining inorganic and organic pesticides in foods.

The Wiley Award, which carries a $500 honorarium, was established in 1956 to honor the founder of the original food and drug law, and of the A.O.A.C.

California Seed Association

has named Fred W. Rohnert, long active in state, regional and national seed association activities, an honorary member — the eighth man so honored in the 21-year history of the association. Rohnert is president of Seed Research Specialists, Inc., Modesto, Calif., and Waldo Rohnert Co., Hollister, Calif.

Milk Industry Foundation

Washington, D.C., has named Norman Myrick, recently editor of American Milk Review, New York, director of public relations.

For more information on product at left, circle 7459 see information request blank opposite last page.

continued from p. 27

the antibiotic oleandomycin in chicken feed has been approved (Federal Register July 27).

Anti-caking agent: Colloidal silicon dioxide has been approved (Federal Register July 28) in quantities of 1% by weight as "the sole anti-caking agent in salt, seasoned salt, and sodium bicarbonate." The clearance was sought by Cabot Corp.

Pesticide: Clearance granted (Federal Register Aug. 2) for residues of Chemagro's Systox pesticide in sugar beets and sugar beet tops under Miller Pesticide Law and in dehydrated sugar beet pulp for livestock feed under the Food Additive Law.

Sparging gas: Sparging gas to displace or remove oxygen in the processing, storage, or packaging of citrus products, vegetable fats and vegetable oils, coffee, and wine has been approved.

Bananas: Sodium dehydroacetate granted tolerance of 30 p.p.m. in or on bananas from post-harvest use, provided that not more than 10 p.p.m. of the residues — calculated as dehydroacetic acid, — is in edible portion of the banana. Tolerance granted (Federal Register Aug. 9) requested by Dow.

Breakfast cereals: Clearance granted (Federal Register Aug. 9) for use of butylated hydroxyanisole and/or butylated hydroxytoluene as antioxidants in dry breakfast cereals. Petition filed by Kellogg.

Petitions

Sweetpotato flakes: Morningstar-Paisley seeks clearance for up to 50 p.p.m. of butylated hydroxyanisole and/or butylated hydroxytoluene in sweetpotatoes flakes. (Pillsbury has a similar petition pending for use on potato flakes.)

Pesticide: Union Carbide seeks clearance of tolerance of 10 p.p.m. for 1-naphthyl N-methylcarbamate in or on broccoli, brussels sprouts, cabbage, carrots, cauliflower, cohlrabi, melons, pumpkins, winter squash, lemons, and oranges.

Chicken feed: Merck seeks clearance (Federal Register July 22) for use of streptomycin in chicken and turkey feed, at levels between 12 and 50 grams per ton of feed, in combination with either amprolium alone or with a combination with amprolium and penicillin.

Pesticide: FDA requests exemption from tolerance requirement for sodium propionate from post-harvest applications as a preservative on salad greens and vegetables intended for consumption as salads. END

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Corn starches and syrups are time-tested, nourishing, economical carbohydrates. They've long been used and accepted as foods and food ingredients. They may be the answer to problems you have resulting from recent legislation regarding foods because:

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CORN STARCH is ideal for baking, baking powder, meats, mustard, salad dressing, custards, pudding, canned soups, etc.

CORN SYRUPS are used in mixed syrups, infant foods, preserves, jams, jellies, baked beans, sausage and cured meats, frozen and canned fruits, frozen deserts and many other products.

CORN SYRUP SOLIDS are widely used in ice cream, baked goods, frozen fruits, dry food mixes, jams, jellies, table ready and canned meats, to mention just a few.

Whatever you may be processing OK BRAND corn syrups or starches will help you keep your product in her cart week after week.

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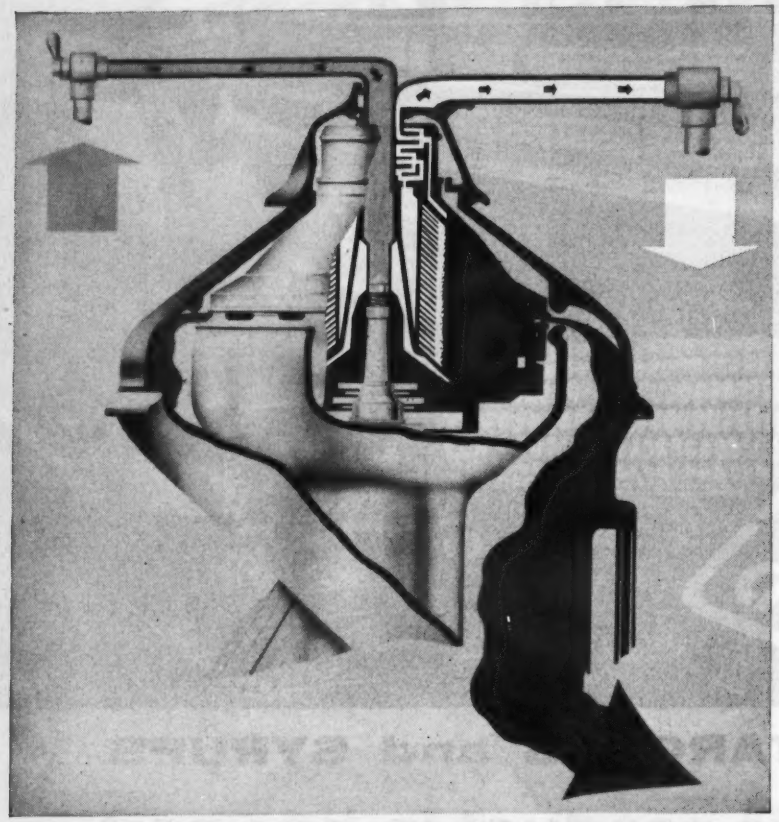

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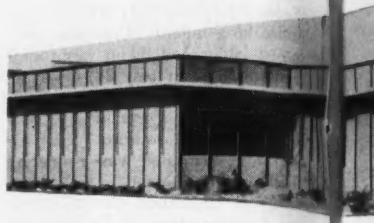


In addition to ultra-modern processing areas, plant features a 200-seat auditorium, administrative offices and a unique hospitality room

Pioneer soft-drink processor's model new plant is

Equipped to meet

WHETHER CUSTOMERS prefer their carbonated soft drinks in one-trip bottles, round-trip bottles or cans, the model new plant of Glaser Beverages, Seattle, is designed to serve their needs.

With franchises for three leading soft drinks — 7-Up, Pepsi-Cola and Schweppes Quinine Water — the 29-yr-

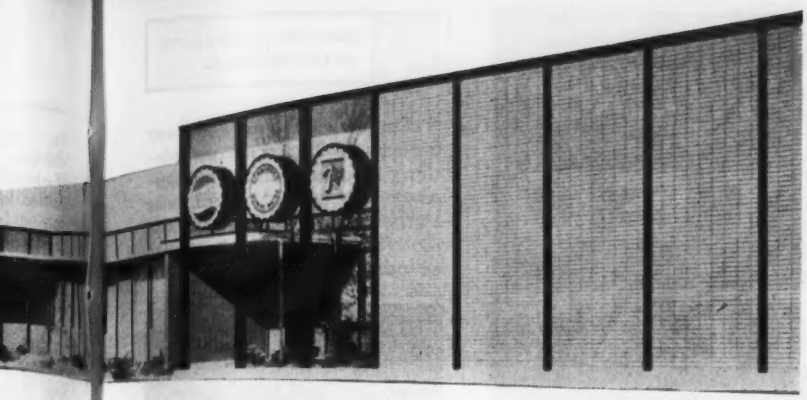
1 On way to fillers, washed bottles are electronically inspected at rate of 400 bpm

2 At dedication ceremonies, Washington's Lieut. Gov. John A. Cherberg, right, shakes hands with founder Paul F. Glaser. With them are, l. to r., Walter R. Daggatt, president of Alpac Corp., Glaser's parent company, and K. E. Kingsley, vice president in charge of the Glaser soft drink operation

3 Cans move from filler into a Canco doubleseamer, which applies the top lid

2

1



package preferences

old company has invested $1.5 million in an 85,000-sq-ft, one-story plant regarded as a model for technical layout, architectural attractiveness and advanced packaging concepts.

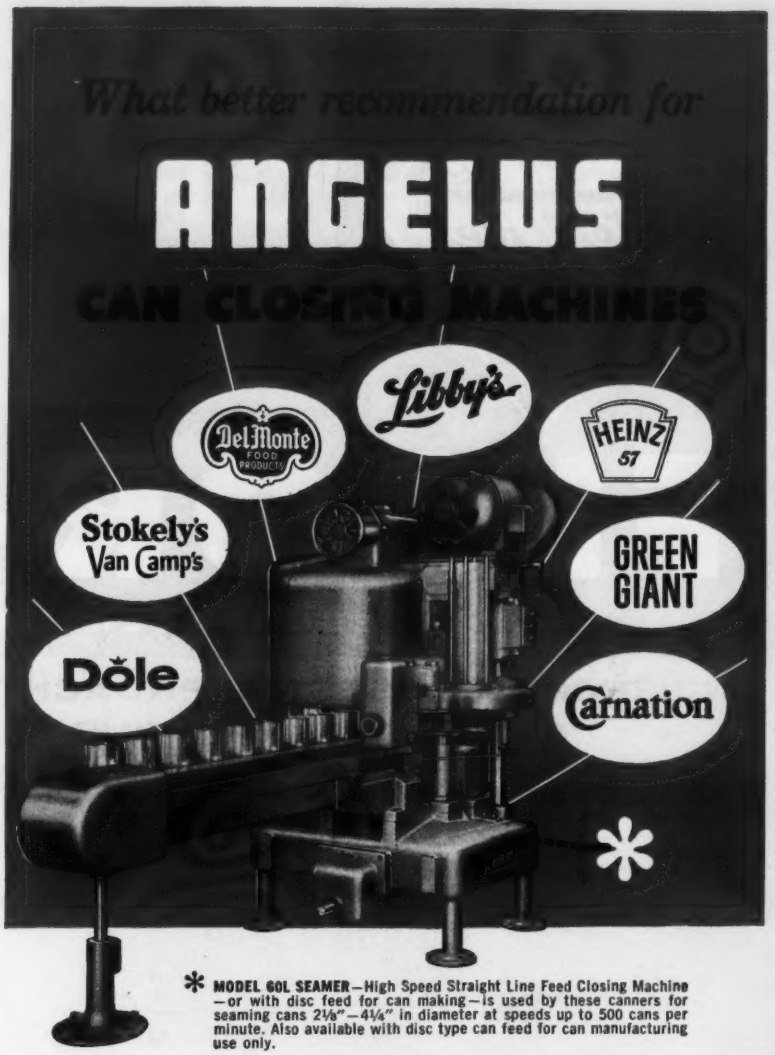
Processing area is one large room, more than 150 ft long, in which soft drinks can be packed in several types of bottles, including returnable and non-returnable.

Two of the three franchisers — Pepsi and 7-Up — also will distribute their drinks through Glaser in 12-oz cans manufactured locally at American Can Company's Seattle plant.

The can line was purchased from and installed under supervision of American Can. Crown Cork & Seal Company supplied the bottling machine; Geo. J. Meyer Manufacturing Company the Meyer-Dumore bottle washer and the can filler.

Immediately adjoining the processing area is the huge, 45,000-sq-ft casing and warehouse section. Annual output capability is more than 3 million packaged units of all types. END

3



* MODEL 60L SEAMER—High Speed Straight Line Feed Closing Machine—or with disc feed for can making—is used by these canners for seaming cans 2⅛"—4¼" in diameter at speeds up to 500 cans per minute. Also available with disc type can feed for can manufacturing use only.

Canners and can makers the world over need...even demand the ultimate in simplified, rugged, efficient design. These demands are met by Angelus...the nation's only manufacturer exclusively producing automatic can closing machines.

Angelus seamers, backed by over 45 years of experience, are rugged and dependable; they are simple to operate and maintain; they represent the lowest possible initial investment.

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Sanitary Can Machine Company

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BEFORE

AFTER

In its ability to resist corrosion of organic and inorganic acids, alkali, and abrasion Steelcote Floor-Nu is unique in the field of floor patching and resurfacing. Its great strength makes possible a 1/4th inch floor overlay without raising or moving equipment. Unequaled adhesion to damp or dry surfaces, and impact resistance greater than any other coating assure long life. Light weight eliminates the necessity of structural reinforcement. When you buy Floor-Nu you buy a record of satisfactory performance in plants throughout America; you buy the chemical engineering service of Steelcote — FIRST IN FORMULATED EPOXIES.

Steelcote Mfg. Co. - St. Louis 3, Mo. - Rodney, Ont. Canada

7463 on Reader Service Slip.

plants companies personalities

Campbell Soup Company anticipates late 1963 completion of a new nearly-1 million-sq-ft processing plant near Paris, Texas. Among reasons motivating the plant site choice of northwest Texas were the

rapid sales growth of convenience foods in the Southwest, and the fact that many high-quality ingredients used by the plant can be grown locally. The company estimates the plant will spend more than $20 million annually for ingredients, supplies, containers and miscellaneous items.

Allan E. Katz has been named executive vice president of **F. Ritter & Co.**, Los Angeles flavor house. His duties are to coordinate the firm's production, research and development and sales efforts in the currently accelerated program of modernization and expansion.

Nalley's, Inc., Tacoma, Wash., specialty food processor, has created the position of director of research and development and appointed **Henry Willis** to fill this post. Succeeding him as director of manufacturing is **Ray Wery**, formerly director of marketing services.

Negotiations are underway for the acquisition of **Burry Biscuit Corp.**, Elizabeth, N.J., by **The Quaker Oats Co., Chicago.** The tax-free transaction would involve approximate exchange ratio of one share of Quaker common for each three outstanding shares of Burry common. At current market prices, this would amount to about $21 million. Burry president George W. Burry would continue to head his company

as a Quaker Oats division.

Burry's 1960 sales, including sales of the recently acquired Cal-Ray Bakeries, totaled $29,614,874 — combined earnings totaled $969,000. For the fiscal yr ended June 30, 1961, Quaker Oats earned $13,523,000 on net sales of $321,843,000.

John E. Repko, 35, has been elected a Pepsi-Cola vice president, and named to the newly established post of director of syrup operations.

Gentry, a division of **Consolidated Foods Corp.,** Glendale, Calif., has appointed **Dr. Paul G. Miller** technical director in over-all charge of the research, quality control and technological development programs in the Gilroy and Oxnard, Calif., plants, and in the central laboratories in Glendale. He thus fills the post vacated several yr ago by Dr. Arthur N. Prater, when the latter became Gentry president. **F. Leslie Hart** continues as Gentry technical coordinator.

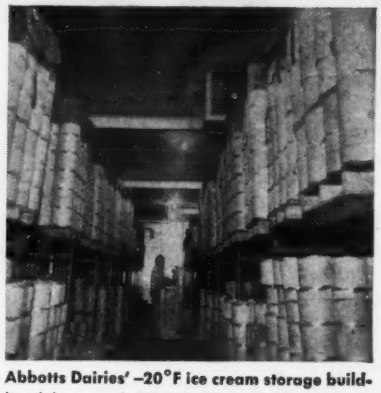
Miller

Killinger

Penick & Ford Ltd. announces promotion of **Dr. J. E. Killinger** to vice president — product application and development, of the company's new Corn Refining Division. With the company since 1931, Dr. Killinger most recently had been vice president and director of technical sales service and field development. He now will have total responsibility for developing new areas of application of existing and new products.

The Pillsbury Company has acquired controlling interest in a major French food company, Etablissements Gringoire, S.A. — manufacturer of specialty baked foods as well

This 38°F island-loading milk station (above and left) is built right onto Abbotts Dairies' bottling plant at Norristown, Pa. Its 24 doors all open on loading platforms. Its Armorply-faced walls and ceilings require no finishing after erection. And because of a patented, joint-locking device, Armorply buildings can be quickly and easily erected, moved, and expanded.



Abbotts Dairies' –20°F ice cream storage building (above and right), in Newark, New Jersey. The Armorply-faced walls, ceilings, and exteriors need no painting, no maintenance. They resist water, dirt, and vermin. Armorply-faced rooms and buildings can be supplied for temperatures as low as –100°F.

For Milk or Ice Cream—Abbotts Dairies gets refrigerated space fast and economically with Armorply buildings

One building above is a 38°F island-loading milk station. The other is for –20°F ice cream storage. Yet Abbotts Dairies built both of them fast and economically with Weldwood® Armorply® sectional walls. That's because these metal-faced plywood modules need no costly masonry, no complex foundation. And, as prefabricated by the Freezer Box Division of Annapolis Yacht Yard, Annapolis, Md., Armorply-faced modules have a patented, joint-locking device which eliminates sealing problems and makes for fast, easy assembly. Also makes it easy to move or expand an Armorply building.

Armorply modules come faced with stainless steel, aluminum, or zincbond steel. For a free sample and full details, mail the coupon today.

SEND FOR FREE SAMPLE

FP9-61

United States Plywood
55 West 44th Street, New York 36, N. Y.

☐ Please send me a sample of Armorply and the descriptive booklet, #2133 on Armorply cooler and freezer rooms.

☐ Please have a Weldwood representative call with full details.

Name.....

Firm.....

Address.....

City.....Zone.....State.....

Weldwood Armorply Metal-Clad Plywood

PRODUCT OF UNITED STATES PLYWOOD

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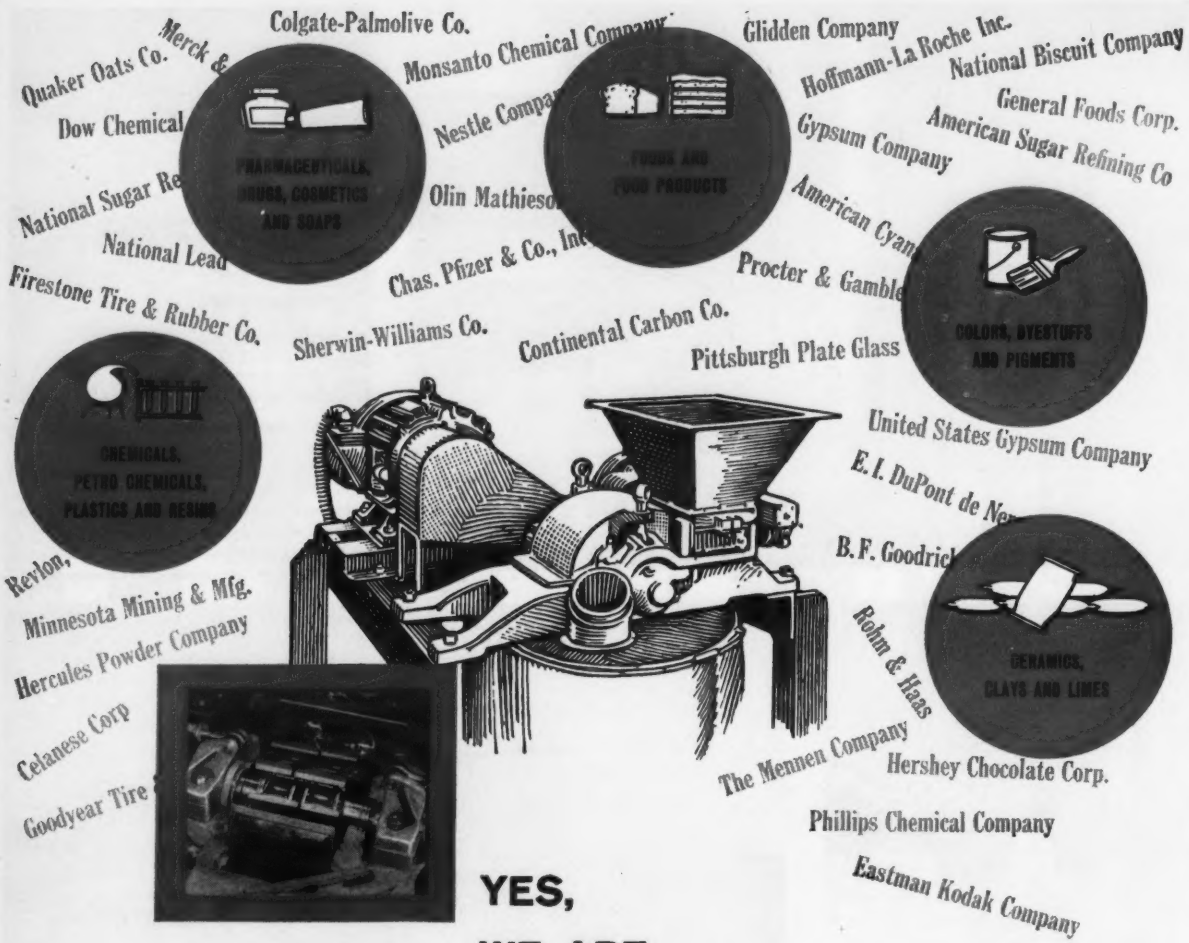

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Because we are proud of the customers who use MIKRO-PULVERIZERS . . .

In the montage of names that form the background of this ad you will find just a sampling from our published list of prominent MIKRO-PRODUCT users in the process industries. They represent companies of all sizes . . . all equally prized.

Each of these MIKRO-PULVERIZER owners operates a unit with a distinct individuality . . . an internal mechanism adjusted to handle a particular job either in dry-grinding or wet milling.

If you want to know what a job-designed MIKRO-PULVERIZER has to offer you in the way of fine or ultra-fine grinding, precise particle size control, and economy of power and maintenance, write for Bulletin 51A.

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plants companies personalities

as a line of macaroni and hard candy products. The company markets primarily in France, but has some export business in other European countries, the U.S. and Canada.

More news of Plants, Companies and Personalities on pp. 74, 91, 115, 121

association news

Bakers' sextennial supershow

"Nowhere else will you see so much in so short a time, at one place," promise the American Bakers Association and Bakery Equipment Manufacturers Association — co-sponsors of the 1961 version of the once-every-six-years Baking Industry Exposition. The big show begins in Atlantic City's refurbished Convention Hall on Saturday, Oct. 7 and continues through Thur., Oct. 12.

More than 300 exhibitors, representing the leading manufacturers of bakery equipment, supplies and machinery, plus allied firms, will feature actual production equipment and components, packaging machinery, product ingredients, packaging materials and delivery equipment in more than 950 display booths.

Concurrent workshop sessions will deal with problems and their solutions concerning specific branches of the baking industry, including: wholesale bread, cake, pie, multiple-unit-retail, home service and retail.

Only one general session — the annual meeting of AMA members — will be held. This will convene on Monday morning, Oct. 9. The Bakers Party will be held Wednesday evening, Oct. 11.

For more information, write Karl E. Baur, chairman, 1961 Baking Industry Exposition, American Bakers Assn., 20 N. Wacker Dr., Chicago 6, Ill.

More Association News on pp. 19, 28

FOR A PERFECT RECORD OF RETORT PROCESSING

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1. Eliminate wrong cook schedules.
2. Guard against "by passing" retorts.
3. Warn of any failure in retort processing.
4. Keep retort baskets in sequence.
5. Provide low-cost permanent records for cooking plants.

The cost of Cook-Chex protection is negligible . . . less than one cent for 75 cases of No. 300 cans.

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You'll receive a generous supply of Cook-Chex at no cost; send your name, title, and plant address to Dept. FP-9

ATI **Aseptic-Thermo Indicator Company**

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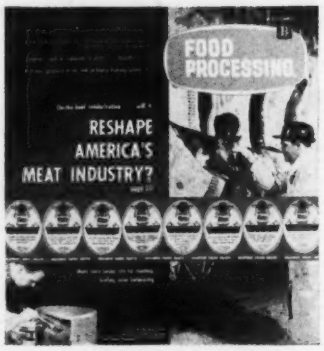
7466 on Reader Service Slip.

Will packers adopt on-the-hoof tenderization?

Swift makes patented tendering process available to all packers

FP STAFF



Our July cover emphasizes but one of several significant advantages of on-the-hoof tenderization: the roasting or broiling — even barbequing — of beef cuts that heretofore could only be prepared by moist-heat cooking

SWIFT & COMPANY — originator of tendering process for ProTen beef — has found a subsidiary, ProTen, Inc., to make patented process available to entire meat industry, both in US and abroad.

By this process, meat is tenderized through the injection of a protein-affecting enzyme into the live animal, see July issue of FOOD PROCESSING, pages 30-33.

ProTen, Inc., 111 W. Jackson Blvd., Chicago 4, Ill., will produce the papain enzyme, license other meat packers in use of the process, and provide technical service. Service arrangements call for stationing technicians in plant using process to assure proper technique and control.

Packers desiring to use tendering process must have federal inspection. Cost to licensee will include a flat charge of $2.00 per head, plus a varying charge based on live weight. Latter includes cost of technician stationed in plant and materials used.

Tenderness level of all grades of beef is raised uniformly throughout carcass with the injection of the papain enzyme, which is activated only when the meat is cooked (described in detail in July issue). Process has enabled Swift to establish a new series of consumer cuts, heretofore not available for roasting or broiling.

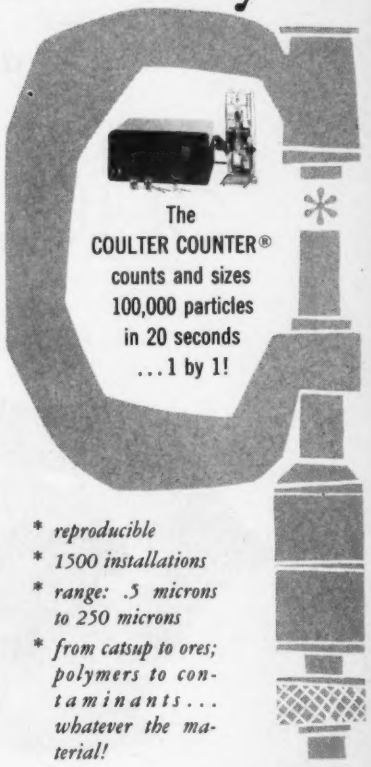
Tendering process is now being used in 18 of Swift's plants in US and Canada to produce about 210 million pounds of ProTen beef. It is expected that production will double before end of the year.

On-the-hoof tenderization is also successful on lambs but has not found ready acceptance in this country because of high tenderness level in domestically raised animals. However, this is not the case in Australia and New Zealand where process has aroused considerable interest.

Enzyme injection has also been tried on poultry. As a result of highly successful laboratory work with turkeys, Swift is now ready to market-test ProTen turkeys.

7467 on Reader Service Slip.

Break-through in fine particle analysis!



* *reproducible*
* *1500 installations*
* *range: .5 microns to 250 microns*
* *from catsup to ores; polymers to contaminants . . . whatever the material!*

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☐ Have your representative get in touch for a demonstration in our office.

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Firm.....

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City.....Zone.....State.....

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THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE
FOOD PROCESSING
SEPTEMBER 1961
VOL. 22 NO. 9

AN EDITORIAL

Industry forced to set its house in order

THE FOOD INDUSTRY is making a shambles of its own house. Its public relations has been working against itself and we who are associated with it. Public relations, unlike advertising, cannot be turned on and off . . . any company or industry which is in contact with the public *has* public relations. If our relations with the public build up a poor image, then public relations is working against us.

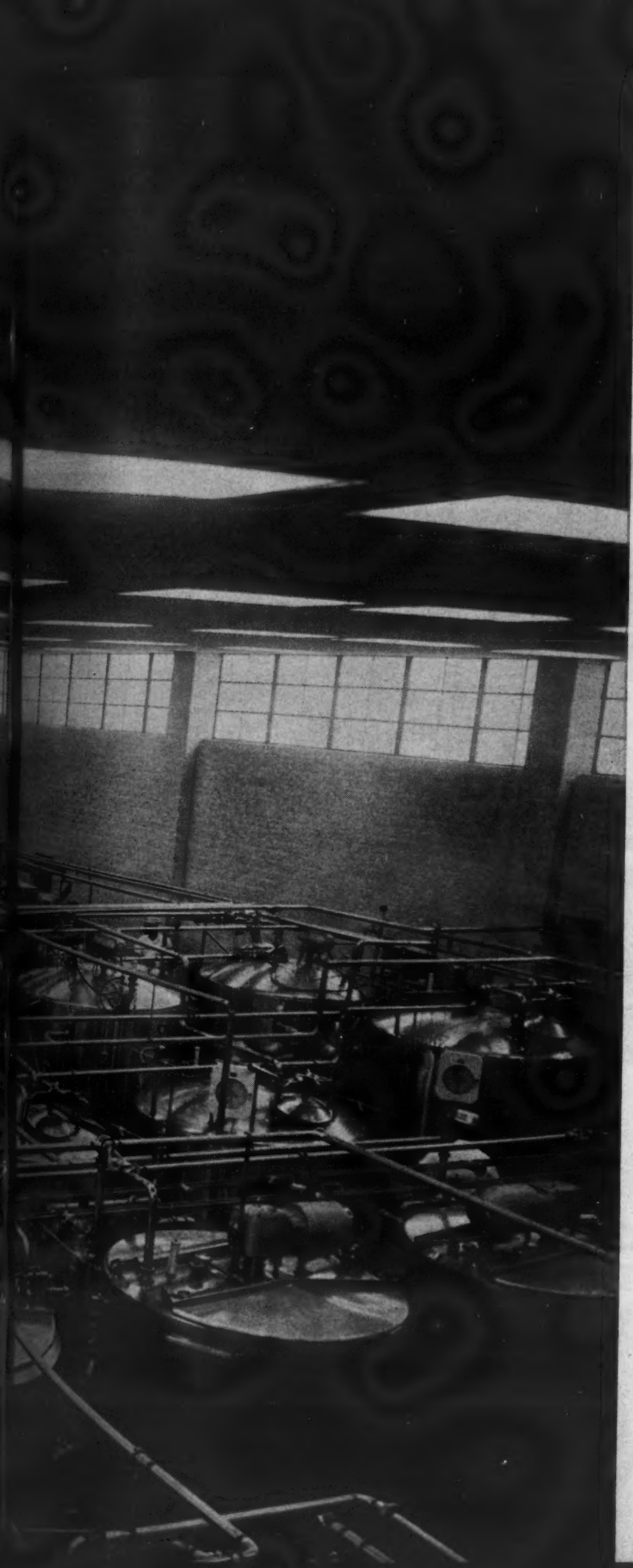
The most recent and by far most serious case of bad public relations is the widespread short-weight practices and misleading label claims revealed to the public by some 99 FDA seizures in a recent 30-day period — see news report, page 13. The situation is so bad that one prominent food and drug official claims more of the food industry is dishonest than honest, as reported in last month's issue, page 12. With this claim we disagree; but obviously we cannot argue with his statement that top firms are guilty, not just a few fly-by-night sharpies.

There have been other cases of poor public relations by the food industry. We need only mention recent happenings such as "contaminated" cranberries, controversial aspects of food additives and food colors, "watered" hams, and use of SQC sampling in weight checking. In these instances, we must resign ourselves to working on the very necessary and urgent task of doing a more effective job of communicating to the public the benefits of modern technological advances. But in the case of short weight and misleading label claims we are faced with the problem of first setting our house in order.

Industry was amply warned by FDA over a year ago that package short weight was chronic and widespread and that more rigorous enforcement of laws was underway. We called prominent attention to this warning in our July 1960 issue. Unfortunately, industry apparently paid little heed to these warnings. Now, in addition to seizures by FDA, the industry has to contend with a Congressional committee investigating deceptive packaging practices — see page 42.

The only encouraging note which we glean from the bad news is a statement by FDA Commissioner Larrick, which the press mostly ignored. This statement, which Larrick emphasized by issuing in more than one form, bears repeating here: ". . . most foods are not short weight. Although there has been a variety of foods seized, the abuses obviously do not involve the whole food industry."

HOWARD P. MILLEVILLE
Editor



Roomful of . . .

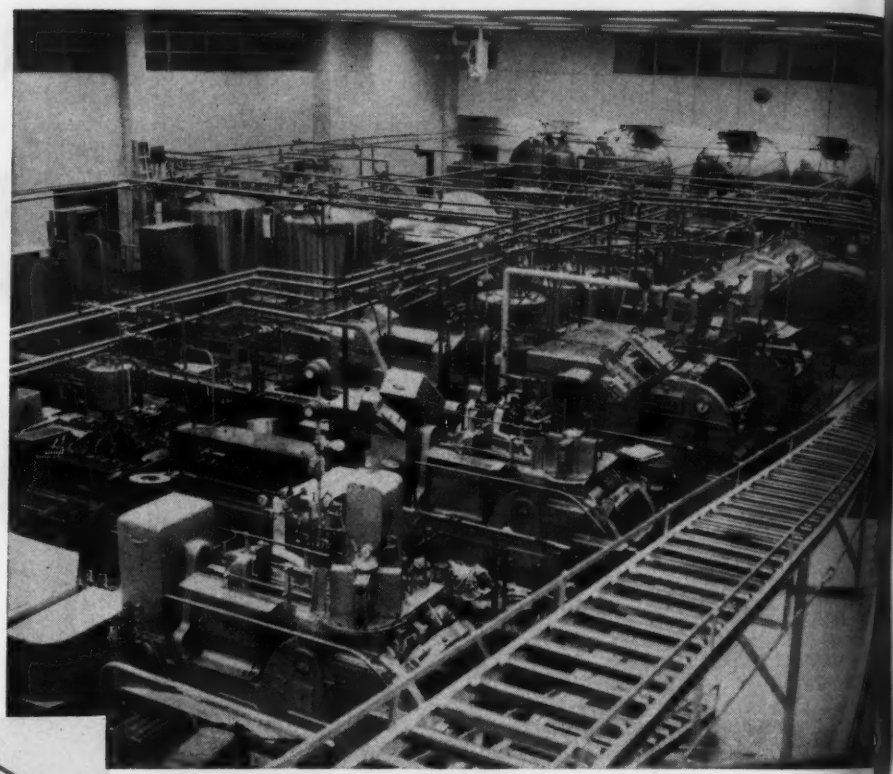
DAIRY AUTOMATION

SEE NEXT PAGE ▶

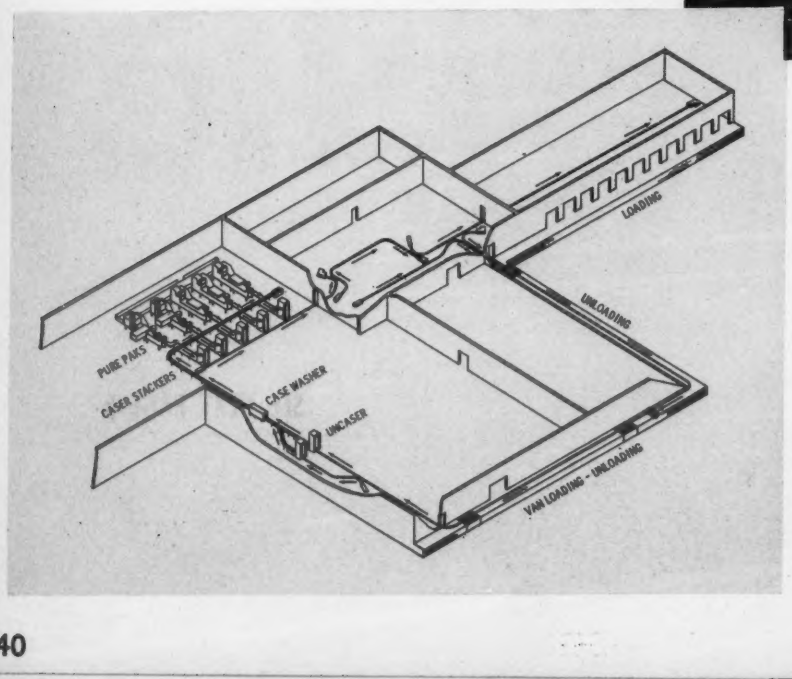
New Dallas milk plant *of Foremost Dairies Inc. is located in an industrial park near the airport, and serves the Northeastern area of Texas*

AUTOMATION . . . Foremost

Compactness *and orderliness are the distinguishing characteristics of the efficient layout for the bottling and process area (64′ x 108′). Four of the five Pure-Paks (three on ½ pints and qts at 75/min. and two on ½ gals at a total of 85/min) are visible in foreground. In the background are pasteurizers and four raw milk receiving tanks, above which are offices and conference room. Large photo on the preceding two pages, taken from window of the engineers office at the extreme right, shows more clearly the mixing vat area and the Pure-Pak operation — carton blanks to filling to caser-stackers*



Isometric flow diagram *shows Pure-Pak handling only (glass bottle washing area is to right of conveyor at bottom of diagram; two glass-bottle fillers are located to right of case stackers on Pure-Pak lines.) Main line of washed cases feeds 5 spur lines to 5 caser stackers for Pure-Pak operation. Automatic controls keep supply of cases on each spur line and also a supply on the main line ahead of each spur. "Policemen" controls on main floor conveyor on which the stacks of cases are discharged prevents stacks of cases from the 5 caser stackers (also from 2 casers on glass bottle line) from colliding with each other*



One unusual feature *of this streamlined array of production equipment at Foremost's Dallas Dairy is the conspicuous absence of service lines. As shown in this photo, these service lines come up through the floor from a service space or semi-basement below the process floor. Ulrich Schmid, Director of Engineering points to the cluster of service piping coming up through floor*

HOWARD P. MILLEVILLE, Editor

mechanizes handling at new Dallas Dairy

WHEN FOREMOST built a new facility to house its expanding milk operation in Dallas, it was decided to incorporate the latest engineering developments, including many important innovations of its Director of Engineering Construction and Plant Maintenance, Southwest Division — Ulrich J. Schmid.

The accompanying photos and diagram describe the features of the automated handling of milk from the Pure-Pak machines (three on ½ pts, pints and qts at 75/min, and two on ½ gal at a total of 85/min).

Use of Creamery Package combined caser-stackers based on the design of Ulrich Schmid in place of separate casers and stackers, made possible a very compact and efficient arrangement.

The caser-stackers are air operated, eliminating electrical power and electrical controls and the accompanying maintenance headache in an area hosed down many times daily.

To conserve air power, two pressure lines are used: 80 psi for use on power strokes; 40 psi on return (no-power) strokes.

Stacks of filled cases are automatically conveyed by floor conveyors to the Hollywood cooler — the long loading area in the upper right of the flow diagram. Here the stacks are manually pulled off at each truck's loading location.

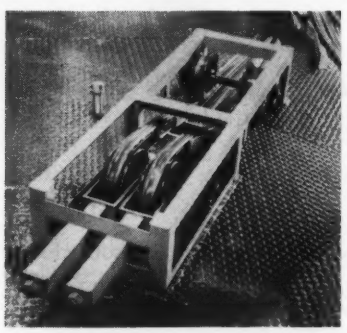
To load, the driver simply pulls the stacks of cases, grouped by his loading station, onto his truck. Since the flooring is steel plate with a diamond embossed pattern, the loaded stacks of metal cases slide easily.

Glass-bottled milk from two fillers (1 qt at 110/min and 1 gal jugs at 40/min) is handled similarly except that the cases are manually filled, then automatically stacked. The glass-bottle filling and stacking operation can be seen in the farthermost corner of the bottling and process area photo on pages 38 and 39.

The combination caser stackers, as well as the complete material handling system, were engineered and built by The Creamery Package Mfg. Company, 1243 West Washington Blvd., Chicago 7, Illinois
7470 on Reader Service Slip.

Closeup *of combination caser-stackers shown in the rear center of the large photo on pages 38 and 39. Each caser-stacker takes paper cartons at normal conveyor level from the Pure-Pak machines, places them in a case and then stacks the cases at floor level, eliminating the need for (1) separate casers and stackers, (2) length of conveying lines between separate caser and stacker which conventionally must lower cases to floor level before they are stacked*

The five caser-stackers shown take care of the Pure-Pak operation; opposite them and not visible in the photo are two additional stackers which take care of two glass bottling filling lines. The five caser-stackers and the two stackers are serviced by one "floater" who may be found in their midst in the large photo on page 38.



Floor conveyor returns *and power units inside plant are located on floor rather than in pits below floor. This design innovation — now fairly common in recent dairy installations — was originally conceived by Ulrich Schmid, to eliminate the messy, hard-to-clean floor pits*

Stacks of cases *are easily pulled off conveyor over the embossed diamond steel floor plate in this Hollywood cooler at the end of one of the floor conveying lines according to orders for each delivery truck*

The public gets

A Distorted View

of packaging practices

Women Leaders Assail Deceptive Food Packaging in Senate Hearing
Container Racket
Package Tricks Gyp More Than Thumb on Scale
Women Tell Senators Of Trick Food Packs
The Recor
Consumer Is A Sucker For Deceptive Packag
Phony Packaging Complaints Top Consumers' Howls
Labels Cheat Housewives, Senators Told
Still Looking for Perfect 'Salesman'
Package Hearing Sums U
Today in Washington
Consumers Union Spells Out Flood of Beefs on Packaging
Senate Probe Aimed at Tricky Packages
Tricky Labels, Packages Blasted
Food Packers Accused of Using False Labels and Empty Spaces
Consumer Is Often 'Sucker,' Labeling Probers Are Told
Deceptive Packaging Studies Continuing
Will Show How Packaging Can Deceive Consumers
How Many Pears in Can? Senate Hearing Will S

THE NEWSPAPER headlines reproduced on this page speak for themselves. Although food wasn't the only commodity looked at during the hearings before Hart's anti-trust subcommittee in June, packaging practices of food manufacturers got the lion's share of attention.

Obviously there are some packaging abuses, and a few which can be considered flagrant misrepresentations. But this doesn't mean that all food packaging should therefore be under suspicion as a casual observer might conclude.

Senator Hart assures us that the hearings will be resumed in the fall. Thus far he says he has not arrived at any final opinion as to reforms needed to regulate packaging practice. But he did state that the volume or weight of a package ought to be stated in large print, and he thought it would be a good idea if units were used which would make it easy for consumers to figure comparative prices.

At this hearing the really only objective testimony was that of Thomas P. Wharton, Washington Packaging Consultant. Unfortunately, his discerning analytical presentation was ignored or misinterpreted by many reporters, including those of the business press. We therefore are publishing his testimony in full on the facing page.

THE EDITORS

An objective approach to

Determining deceptive package and labeling practices*

THOMAS P. WHARTON, President
Packaging Consultants, Inc.
Washington, D.C.

SENATOR HART, and gentlemen of the Subcommittee: I am appearing before you today representing a firm of independent packaging consultants. Being impartial and unbiased, we must look at problems, such as those on which hearings are now being held, without prejudice and without emotion. We try to see both sides of the picture. We are interested in both the motives of the manufacturer and the reactions of the consumer.

Being impartial and objective does not mean that we must be neutral or straddle the fence. It would be a popular stand for me to take the position of defending loudly the innocent housewife. It would be a prudent position for me to try to defend the packaging industry, the package designers, and the manufacturers. As consultants, we must try to analyze the various facets of this overall problem, present our conclusions, and let the chips fall where they may.

None of us should indulge in shallow thinking and generalize to the effect that manufacturers are all conniving to mislead and deceive the consumer which has (erroneously, I believe) been branded as a sucker. On the other hand, no one should be so blind as to whitewash the examples of confusing and less-than-honest packaging which have been singled out by your investigators and by some of the witnesses. But above all, we must differentiate between the legitimate efforts of the marketing people to motivate the shopper to pick up their product rather than their competitor's product, and the sinister, subtle, obviously calculated misrepresentation which is intended to cheat and defraud.

It is not too difficult to recognize the many packages which are honest and forthright, reasonably full, and well labeled. Nor is it difficult to single out those which are obviously deceptive in size, shape, volume, or labeling. It is those in-between, the border line cases, which present the greatest problem to this Subcommittee.

Has anyone defined the point at which a package or label becomes misleading? Has anyone defined "deception"? To me, this is what is needed. Until there is an effective yardstick against which the manufacturer and the consumer, and the Food and Drug Administration, can measure the point at which a package or label becomes misleading, there will be endless discussion, debate, and prolonged legal action on each suspect package.

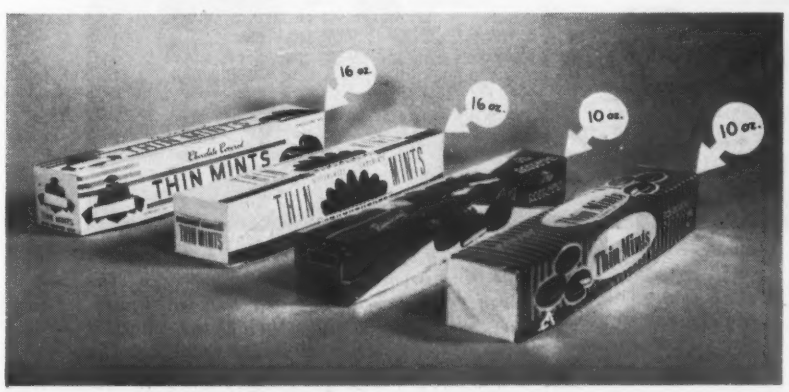
What makes the task of this Subcommittee a difficult one is that it is not easy for such a yardstick to be established. One cannot merely define deception with a few sentences of well-chosen words and expect to have a legal basis for stopping questionable practices. It is our considered opinion that someone should be charged with the responsibility of having studies made for the purpose of establishing standards of proper packaging and labeling. These standards will not be simple. Each category of goods must be approached individually and, what's more, variations of products within a particular category should be recognized.

I would like to discuss in detail several categories and show illustrations of the problems involved in defining deception or standardizing certain aspects of packaging and labeling, so that perhaps we will recognize a systematic approach toward the solution of the problem. All examples and photographs used have been masked so as not to reveal names of the manufacturers.

Chocolate-covered mints

My first example concerns a few brands of chocolate-covered mints which are being marketed today. In packaging circles, this is the most talked of example of alleged deception. One of these packages has been under study and investigation for months; it has been taken to court where an attempt was made to stop the sale of a glaring example of deception. Here is a photo-

Fig. 1: *Weight of chocolate-covered mints in approximately the same size boxes varies 60%*



* A statement before the Anti-Trust and Monopoly Subcommittee Hearings on Packaging and Labeling Practices, June 30, 1961.

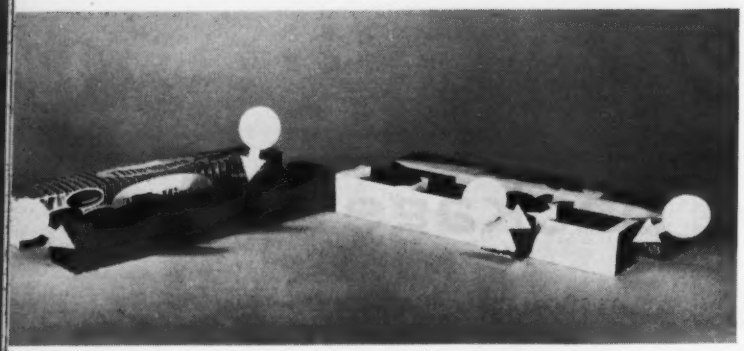


Fig. 2: *Hollow partitions and recessed ends in two of the boxes shown in Fig. 1 account for a full two inches of length*

Fig. 3: *The "billboard" per ounce of contents of these shredded wheat packages varies from 3½ square inches at left to 6½ square inches at right*

Fig. 4: *Size of instant mashed potato packages is inversely proportionate to the weight of the contents in this grouping. But as shown in Fig. 5 below the smallest package is less than 40% full, whereas the largest package is 90% full*

graph (Fig 1) of four brands of chocolate-covered mints in approximately the same size package. Two of the boxes contain 16 ounces; two of the boxes contain only 10 ounces.*

Now let's look inside of the package (Fig 2) and see if we can discover the reason for this substantial discrepancy in the weight of the contents. I am convinced that the housewife who opens this package is shocked and bitter at the obvious steps which have been taken to reduce the quantity of mints in the package. In the inner package, the ends have been recessed a full half-inch. Two hollow partitions have been provided, each of which occupies another half-inch of space.

This deception isn't even subtle. A full two inches of length has been faked within the package. Within the three compartments, there is enough additional space for six additional mints. The width and height of the box are sufficiently large to accommodate a mint one-quarter inch larger in diameter. It is significant to me that legitimate manufacturers put 60% more of their mints in the same size box.

There should be some way to stop such a flagrant violation, but these mints are being sold in a large drug chain in Washington today.

Now there are two other angles in this case which represent problems beyond those which meet the eye. I understand that the company that now makes this deceptive package used to put a greater quantity of mints in this same box, but over a period of time has reduced the quantity without reducing the size of the container. Secondly, as a result of this type of competition, two other brands have resorted to recessed ends and hollow partitions.

It is obvious that if such practices are allowed to continue, each company will try to out-do the other and deception will become standard practice. It is not enough that somewhere on the package, in small letters, the weight of the contents is shown.

While existing regulations requiring a statement as to the weight of the contents can be substantially improved, the inclusion of the weight marking should not be a license to permit the manufacturer to cheat the consumer by manipulating the size, weight, and shape of the package.

Cereal packaging

Now let's take another completely different category of food product — dry cereals. One supermarket near our offices carries 60 different dry cereals in packages of many sizes and shapes. We selected 24 boxes for examination and immediately found that we could not generalize within this category, but had to divide cereals into sub-categories.

You obviously cannot compare the volume required for a pound of grape-nuts with the volume required for a pound of shredded wheat. Surprisingly, the weight per unit volume for bran-flakes is twice that of corn flakes, so that corn flakes packages can legitimately be approximately twice the volume of the bran-flakes boxes.

One yardstick which we have used is the number of square inches on the surface of the package as compared with the ounces within the package. I believe we can assume it is the objective of the manufacturer to occupy as much of the shelf space in the supermarket as he possibly can to make his package appear to be larger and to provide more surface on which he can present his sales message. This is his "billboard"; this is his point-of-purchase advertising; this is where he must motivate the shopper to buy his package instead of that of his competitor. So we computed

* Weight is not always the measure of what we are buying! But in this instance it is a bit far-fetched to rationalize and say that perhaps two of the brands are heavy dense mints while the other two are fluffy lightweight mints. If this were true, some of our first arguments against these packages might fall flat, because perhaps a fluffy mint would be of higher quality and more palatable.

Fig. 5: *The smallest instant mashed potato package contains the product of greatest bulk density; it contains two foil envelopes overpackaged in paperboard cartons. If packed loose in the box rather than in the foil envelopes it would occupy less than 40 per cent of the box*

the amount of "billboard per ounce" of various packages.

Here is a photo (Fig 3) showing several shredded wheat packages. The smallest is a 12-ounce shredded wheat package with about 43 square inches of surface on the face of the package, and the largest is a package with 68 square inches of surface containing only 10-¼ ounces. One package has about 3-½ square inches of billboard per ounce while the other has about 6-½ square inches of billboard per ounce.

Without trying to condemn or condone either package, we must ask ourselves whether there is really anything basically wrong with either package. Most cereals are in tall packages; perhaps the manufacturer of the small package is being foolish not to adopt a package of conventional shape.

Let's go one step further with this shredded wheat package. The larger of these two packages has about 10 per cent more volume and about 15 per cent less weight of contents, but upon examination you will find that the larger package contains four inner packs of 3 biscuits each sealed to keep the product fresh and crisp. These inner bags occupy a little space, but they are an added value; they are a convenience which the manufacturer has provided as an added appeal to the consumer. It is a more expensive package to manufacture and I believe most of us would agree that a small price differential is warranted.

Price is not the only criterion for buying food products — or any other products for that matter. One may select a more expensive automobile based on factors other than price. Neither dimensions nor size is the only criterion for selecting a package — or any other product. We don't necessarily select the dress with the most cloth in it. *The weight of the product is certainly not the only criterion. What about quality? What about convenience?*

So in this example the larger package has fewer ounces, but to label this package as being deceptive or misrepresenting the contents, or to feel that you are getting gypped by this package is far more debatable than the first example of the chocolate mints. I think most

Diversey D-Man, Julian Pallasch, working with Russell Cassidy, clean-up foreman, on pipe cleaning operation at Hawthorn-Mellody Farms Dairy, Chicago.

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of us would buy this larger package which would keep our shredded wheat crisp and free from infestation for a longer period of time.

We did notice one area for improvement in cereal packaging of which the Subcommittee might take note. There has been a tendency for packages to become taller and shallower to the point where it is difficult for them to stand up alone. The cereal packages which we considered averaged 4-½ times as high as they are thick. Here is a package that is 5-½ times as high as it is thick. It would appear to us that consideration might well be given to placing a limitation on the proportions of the package. Or else, gentlemen, manufacturers will continue to try to out-do each other in this regard, and where will it lead?

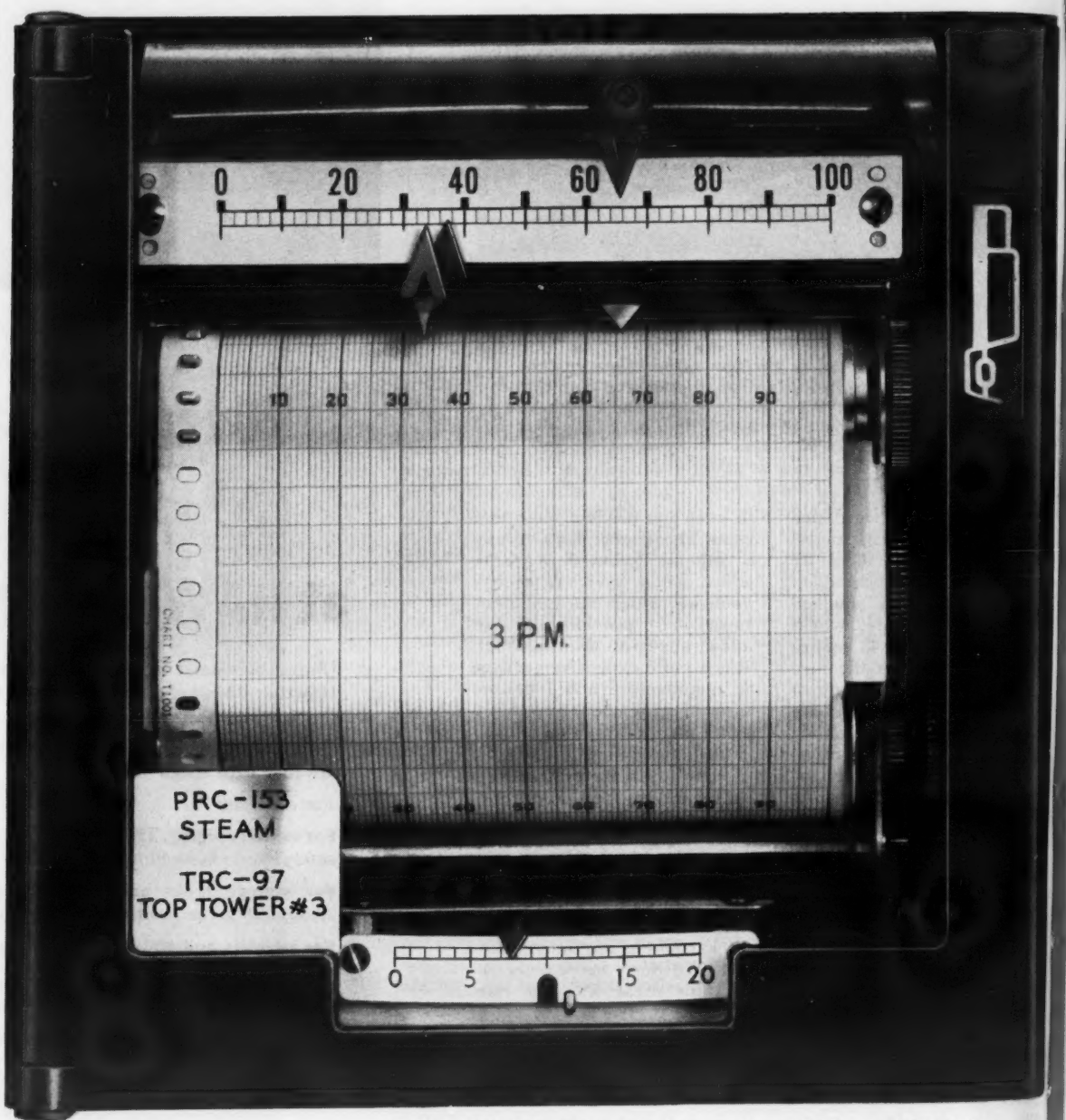
Instant mashed potatoes

I have given an example of what most of us would consider to be flagrant deception and another example of what could be considered to be excellent packaging, even though some might accuse it of being deceptive. My third and last example is an interesting one. Here (Fig 4) are five brands of instant mashed potatoes. On the shelf, the sizes of the packages appear to be inversely proportionate to the weight of the content. They are: 7 ounces, 7 ounces, 6-½ ounces, 6-½ ounces, 5-⅝ ounces.

The smallest package has 7 ounces, and the largest has only 5-⅝ ounces. It is this sort of thing about which some have become emotional and made headlines. Why should those who make the largest packages be permitted to trick the innocent consumer, they say.

Let's take a closer look at these packages, and see which one is the most deceptive. If you will open one of the larger packages you will find a flaky product in a box which is nearly 90% full. It contains no false partitions, no inner-bags, no space fillers. It would be difficult to prove that this package in any way misrepresents contents, or gives the

NEW.



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Simplified control switching between functions... allows the easiest start-up procedure for either the common manual-automatic station or the more complex, single-case cascade control station models. Intermediate "seal" position has been eliminated. Just adjust process to line-up color-coded indicators and switch to automatic or cascade operation as desired.

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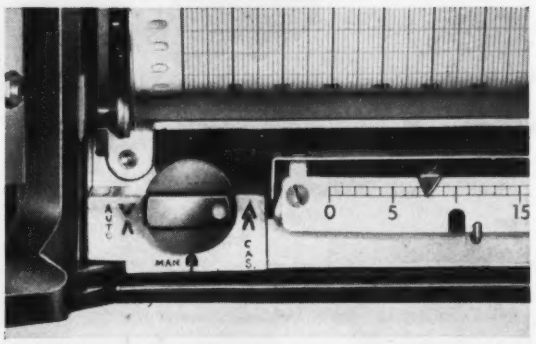
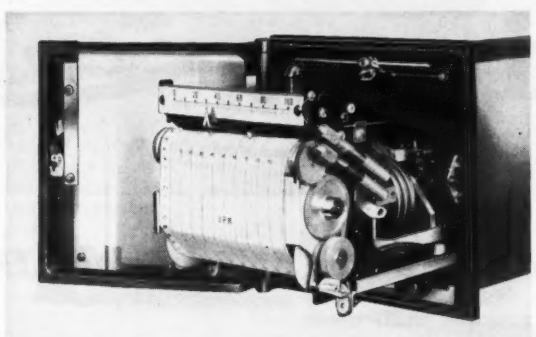
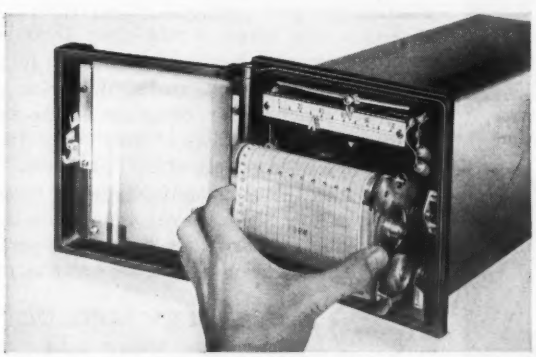


Simplified control switching is keynote of new receiver's design. For instance: uniform switch positions on all models avoid operator confusion in multi-receiver installations; simple alignment of color-coded pointers and a single switching operation put complex automatic or cascaded systems "on stream."



Complete "plug-in" service continuity. Entire plug-in receiver chassis is instantly replaceable with spare for complete continuity of service. Control functions are not disturbed when receiver chassis is removed.



Easiest to service . . . For instance: Easily removable chart drive mechanism—a one-handed operation—permits exceptionally fast chart replacement; just slip out drive, replace with spare, replace paper in original drive at leisure.

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consumer less than his money's worth.

You would be surprised if I suggested that the *smallest package here might be considered to be the most deceptive.* True, it is 7 ounces as compared with 5-⅝ or 6-½ ounces in the larger packages. But let's take a look at it. When one opens the smallest package he finds two foil bags containing a more dense granular product. Perhaps this granular material will make just as good mashed potatoes as the fluffy flaked product in the larger packages. Those who are used to buying instant mashed potato packages in foil bags and over-packaged in paperboard cartons might not be surprised when the package is opened. But looking at it coldly, the volume of the product, if it were loose in the box rather than in foil envelopes, would not begin to fill the box. It isn't 40% full. — See Fig 5.

I think there is one more lesson we can learn from this example. All manufacturers cannot be expected to make products of identical density. Perhaps the lighter weight product is the higher quality. Or perhaps the granular product will make more instant mashed potatoes than the flake product. The labels on all of these packages state that they will make 8 servings. Perhaps they all will — *but who has defined a serving?*

One more comment about this last example. It took my secretary more than two minutes to find the number of ounces in each of these five packages. In only one instance was the weight marked on the face of the container (and incidentally, it was one of the packages which seemed at first to be most deceptive.)

Here is an area where regulations are very much in order. There is very little reason why all manufacturers could not be required to place the statement of contents on the face of the package, and in my opinion they should be required to mark this weight in letters of a prescribed minimum size, in contrasting colors, and apart from other let-

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In combination fruit juice drinks, Sweetose blends and enhances the natural flavors and colors of fruits.

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Sweetose, the original enzyme-converted corn syrup, brings out true fruit flavor . . . gives a brighter, richer, more appetizing appearance that wins sales!

Whether you pack jams and jellies, fruit juice drinks, or fruits and berries, remember this: bland, crystal-clear Sweetose Corn Syrup gives balanced sweetness control—never masks a flavor no matter how delicate.

Strawberries taste like real strawberries, grapes like real grapes, peaches like real peaches, for Sweetose holds natural "fresh-picked" flavor! Captures true fruit colors at their peak. Improves appearance, body and texture in a wide variety of fruit products.

Look into the many advantages of Sweetose today. For more information on how Sweetose can impart customer-winning characteristics to your products at *definitely lower sweetener costs*, see your Staley Representative at the branch office nearest you, or write:

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tering which may tend to camouflage these markings. Some packages have contents marking in tan or brown or yellow on white. Here is an example of a package which has its contents marked in yellow on shiny gold foil. Let's see why they are not so anxious to have the quantity of the product well marked on the box. This practice could be prevented by a relatively simple regulation.

To me, it is wrong when the product does not reasonably fill the package. It is wrong when there is an excessive amount of air space or slack fill within a package. It is wrong when a package gets so radically out of proportion that it is misleading as to its volume. It is wrong when the contents marking is hidden or camouflaged or buried among other lettering on the package. These conditions can be and should be remedied.

But it is also wrong, it seems to me, to expect all manufacturers of a particular product to accidentally come up with the same size package, the same weight of contents, or the same price. If they did, it would be an extreme coincidence and we would have reason to charge them with collusion. In fact, as has been shown, products vary as to weight or density, and such standardization would be impossible.

It is wrong to generalize and accuse all manufacturers of trying to put one over on the consumer. It is wrong to take the attitude that all manufacturers consider the consumer to be a sucker. It is wrong to accuse all manufacturers of attempting to confuse when packages don't happen to be the same size, weight or shape. It is wrong to criticize a manufacturer of ulterior motives when he designs a package to be attractive, colorful and appealing to the purchaser to motivate a sale — so long as he does it fairly.

I have made no comments on the pricing of food products or on advertising slogans, catch phrases, false analogies, or other sales bally-hoo which sometimes finds its way to

a progress report on "Immersion Freezing" from Airco

The use of liquefied gases as freezing agents opens impressive new possibilities for progress in the food industry. "Immersion Freezing", as this process is known, holds promise of faster production, higher quality standards and the availability of totally new food products.

"Immersion Freezing" has received much publicity which, like many new major technological breakthroughs, is accompanied by rumors and claims that tend to distort the picture. The purpose of this report is to provide a factual evaluation of the process and its potential.

Air Reduction Sales Company, through its Cryogenic and Special Products Departments and its Customer Service Laboratory, has been a pioneer in "Immersion Freezing". The facts in this report are based on two years of development and evaluation. We trust this report will provide the reader with reliable information that will enable him to evaluate the potential of "Immersion Freezing" in relation to his own operation.

"Immersion Freezing" is an almost instantaneous freezing process which involves the immersion of food products into a liquefied gas. It requires custom designed equipment. "Immersion Freezing" with liquefied gases is going to be more expensive in unit freezing costs than conventional freezing techniques. This higher basic cost, however, may be more than offset by what Airco technologists call the XYZ factors.

X—Quality improvement
Y—Increased production
Z—New product possibilities

FACTOR X

Represents improvement in quality. Quality to the frozen merchandiser might be expressed in improvements in flavor, color, vitamin retention, tenderness . . . resulting in better over-all consumer acceptability.

For example:

1. Strawberries frozen with liquefied gases retain normal color and close-to-normal texture.
2. Meat has better color and is more tender.
3. Whole kernel corn now has no loss in kernel constituents or vitamins, on-the-cob flavor is retained.
4. Ice cream has more uniform texture and appearance.

FACTOR Y

Represents improvement in production or throughput. The use of liquefied gases as expendable refrigerants allows the food freezer to supplement existing refrigeration for peak seasonal loads. Improvements in throughput may provide many savings in processing to the frozen food packer.

For example:

1. The hardening room can be by-passed in the freezing of ice cream.
2. A shorter freezing cycle allows reduction in the floor space requirements in many processes.
3. The freezing of cut-up poultry can be a continuous process, by-passing freezing storage and extra handling.
4. In the freezing of whole kernel corn, yield may be increased by as much as 25%.

FACTOR Z

Represents the ability to freeze products which cannot be successfully frozen by any other means. Following are some of the advances made by Airco in this all-important area of new product development:

1. CITRUS CELLS—After immersion of a peeled orange, grapefruit, lemon, lime or other citrus fruit in a liquefied gas, the product can be reduced to individual citrus cells. These individual citrus cells can be used in a variety of applications—ice cream, cottage cheese, confectionery products, orange juice concentrate.
2. TOMATO SLICES—"ImmersionFreezing" of tomato slices or wedges yields a highly acceptable product. The extremely fast freezing results in a product which, when thawed, closely approximates the fresh tomato.
3. SLICED BANANAS—Bananas frozen by immersion in liquefied gases retain a high percentage of their original appearance, color and texture.

All aspects of "Immersion Freezing" covered by Airco's XYZ factors are in various stages of development by Air Reduction's Customer Service Laboratory. Only one of them is in commercial production at this time. They are listed here to demonstrate the possibilities for better quality, production savings and new products which may offset the higher initial cost.

DEVELOPMENT OF DATA:

The development of sound technical and engineering data is the basis of the Air Reduction approach to this field. Following is information based on Airco studies covering areas where care must be exercised in the application of "Immersion Freezing".

1. Liquid nitrogen is not an effective bactericidal agent.
2. Pre-cooling or other forms of treatment are sometimes required prior to "Immersion Freezing".
3. Some packaging materials, adhesives, glues, etc., will not withstand the extremely low temperatures resulting from liquefied gas freezing.
4. Enzyme systems appear to function even at these low temperatures.
5. Each product requires individual evaluation for freezing by this method.

SPECIAL EQUIPMENT NEEDED:

The Special Products Department of Air Reduction Sales Company is developing the freezing equipment for "Immersion Freezing". Each product will require custom designed equipment for freezing. Design considerations include throughput requirements, product characteristics, handling equipment and packaging requirements.

The Cryogenic Engineering Department of Air Reduction is developing closed cycle refrigeration systems using either liquid nitrogen or nitrous oxide. These systems will take into account the normal operation of the producer's plant, seasonal characteristics of growing or harvesting of product, stability of the market, etc. Capital requirements for this type of freezing system are considerable and, therefore, long-term use agreements with adequate guarantees and financing will be required.

Readers are invited to write to Air Reduction Sales Company for additional information, or for advice concerning specific freezing problems.

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dry mixes, cookies, crackers, cakes, pies, soups, sauces, gravies, frozen pies, ice cream, sherbet, confections, macaroni & cheese—or most any product calling for non-fat dairy solids . . .

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Savings of up to 5¢ a Pound—Replace your present dairy ingredient with Krafen. Save up to 5¢ a pound on dairy solids costs and be assured of superior performance. Krafen—a high-quality, low-bacteria, low-acid dairy ingredient—is produced by Kraft in one of the world's largest, most sanitary whey plants.

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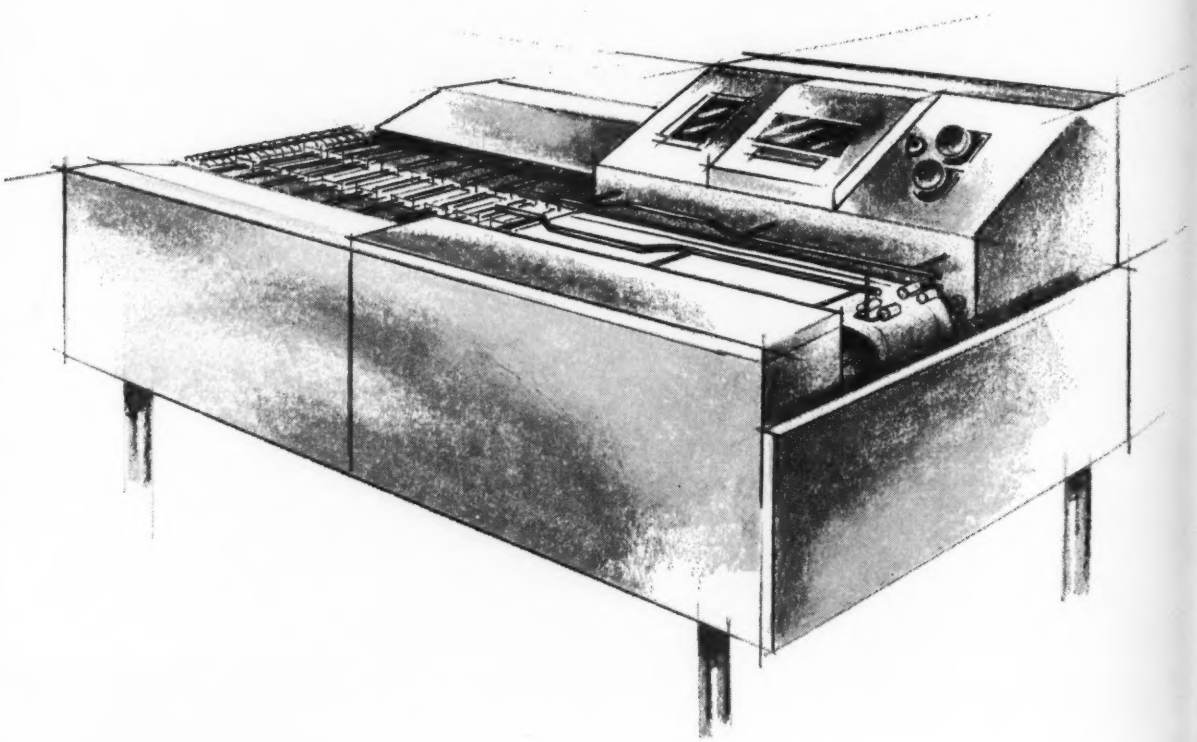

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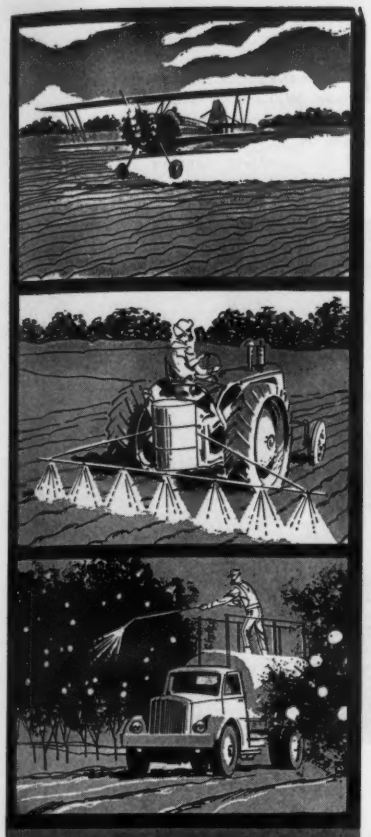

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the packaging label since I consider this to be a little beyond our area of interest.

In conclusion, we feel that a few basic regulations would go far toward curing most of the problems discussed.

Firstly the one big yardstick which is needed to control deceptive and misleading packaging is legislation regulating the ratio of the volume of the product to the size of the package.

Secondly, we need legislation controlling the proportions of packages which are becoming so tall and thin that they are deceptive as to their actual volume.

Thirdly, we need legislation regulating the position, size, and contrasting colors of the content marking.

Fourthly, consideration should be given to a regulation requiring that all packages of food products, with specified exceptions, contain a weight of product in even number of ounces, rather than fractions of an ounce.

With a few concrete steps of this nature, I believe that most of the so-called confusing and deceptive practices in packaging and labeling will disappear. END

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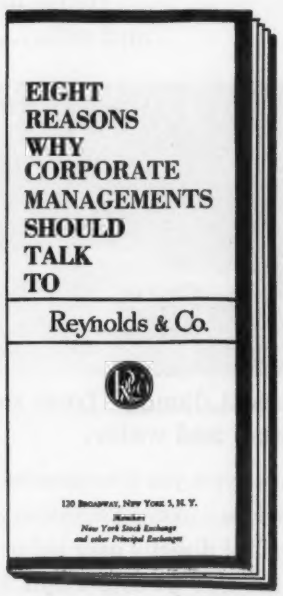

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The Master Mechanics Chemicals Co., (Canada) Ltd., Toronto 14, Ontario.

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J. Whitney King, right, general manager of Custom Packers, discusses with Canco chairman William C. Stolk the estimated 3¼-billion-soft-drinks-per-yr consumption in the Greensboro — Winston-Salem, N. C., market — one of six strategic locations selected for contract canning services

By making it easy for even small bottlers to plunge into the canned soft drink field, will American Can's custom-packing network open up a

New era of major expansion

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A MAJOR UPSURGE is in the making! Now, bottlers do not need to put in an expensive can-filling line to go into the canned soft drink business.

American Can Company's new operation, a Division to be known as Custom Packers, will serve soft drink companies with a network of modern, high-speed canning operations in fast-growing Eastern markets which now lack such facilities.

Here's the significance: private brands of the chains and supers will "grow like Topsy;" regional makers like Dr. Pepper can now expand far more rapidly; the big franchise bottlers of Coca Cola and Pepsi, for instance, will have competition on a very low-cost basis from smaller bottlers and private brands.

Under the plan, bottler customers will furnish, at their own expense, cans, cartons, multi-pack carriers (Canco or competitive supplier) — plus the ingredients for their drink.

Canco then will add CO_2, treated water and provide the labor for packing, and other contract-canning services, at a per-case charge. Quality control will be in strict accord with individual manufacturer's specifications. Pricing will be F.O.B. canning plant.

American Can definitely will

not develop product formulations, nor will it market the soft drinks.

Six new plants, equipped with 700-per-min canning lines and the most modern material handling equipment, will be built from the ground up in these strategic locations: Baltimore, Cincinnati, St. Louis, New Orleans, Jacksonville, Fla., and Winston-Salem — Greensboro, N.C.

Each will be staffed and operated by experienced technicians to handle canning, sales and customer service.

The first plant is expected to be in operation by this fall. All six will be producing early in 1962, in time for the peak season ahead.

Later, the network will be expanded to other markets, as warranted by increases in demand for canned carbonated soft drinks — a demand that Canco states is currently growing at a rate of more than 50 per cent annually.

If the concept is successful, can companies might be encouraged to extend contract canning to other lines — juice, vegetables and fruit.

If this happens, it would be in opposition to food processors setting up captive can-making lines. END

"How long were you in that cornfield, and what was the nature of your stay?"

NEW REX CATALOG Here's "what's new" in *Light-Duty* conveyor service

Whatever your conveying application—bottles, boxes, cans or small parts—yes, even carrots or meat—you'll find the economical answer in the new Rex Light-Duty Conveyor Chain Catalog.

Here you'll find the industry's most complete line of light-duty conveyor chains—the Rex line with chains that meet your specific service requirements right down to the last detail. And to make your selection job fast, easy and positive, specifications are included. Send for your free copy.

TableTop® of Delrin
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Please send Rex Light-Duty Conveyor Catalog No. 6158.

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Use the Guaranteed Original M.S.G.

AJI-NO-MOTO®

Prevent "flavor loss". Use AJI-NO-MOTO®, the original pure Mono-Sodium Glutamate, to bring out the *full, natural flavor* of all your foods. Always reliable for uniform quality. That's why today's leading food packagers and processors specify AJI-NO-MOTO®. *You* should, too! Write for details:

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Opposite Greater Pittsburgh Airport. 60 air-conditioned rooms, tile bath, TV, radio, phone. Superb restaurant and cocktail lounge. Year-round swimming pool. Courtesy car to and from airport. AMherst 4-7790

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In the heart of the Golden Triangle. 400 outside rooms, bath, radio, TV, air-conditioning. General Forbes Lounge & Dining Room. ATlantic 1-6970

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1 mile west of Irwin Interchange on Route 30. 60 air-conditioned rooms with TV, telephone, combination tile baths. Excellent dining room and facilities for group parties. UNderhill 3-2100

HOTEL PITTSBURGHER MOTEL
Opposite Greater Pittsburgh Airport. 56 air-conditioned rooms, tile bath, radio, TV, private phone. Courtesy car to and from airport. AMherst 4-5152

*Teletype Service. Telephone any Knott Hotel. All Knott Hotels and offices in U.S. connected by teletype.

Joseph F. Duddy, Gen. Manager

Route 30, Lincoln Highway, Shortest Route to Pittsburgh

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Sometime the Civil Defense sirens may sound out 'for real!' This prototype project points the way here-and-now to

Practical in-plant e

Freeze-dried and canned foods capable of mass-preparation by untrained personnel on simple, low-power-consuming equipment . . . a short "menu cycle" to provide needed variety . . . systematic semi-annual rotation of food emergency stocks to assure continuous freshness . . .

FP STAFF

EARLIER THIS YEAR, New Jersey Bell Telephone Company decided to do something about plant disaster or emergency feeding programs — and selected as a prototype project the feeding of its highly trained technical staff and executives for a 14-day period in an underground shelter.

Setting up the program, by company executives, involved issuing a set of demanding specifications, and placing the project under the general direction of their food-management staff. Most im-

Systematic periodic replacement of emergency shelf stock — and its use in company cafeteria — insures adequate freshness should actual disaster-feeding situation occur

Entire "kitchen" for the 100-man, 14-day feeding test was this tandem arrangement of three Corning Electro-magnetic Skillets — very portable, and actually more effective in performance than any steam table

emergency feeding program

portant specifics included:

1) an 1800-2200 per-man-per-day calorie intake, for a 14-day minimum;

2) menu flexibility capable of almost indefinite expansion, to feed any number;

3) very limited space for food storage, handling, preparation and service;

4) very limited water;

5) foods edible unheated (and uncooked) if necessary;

6) frequent inventory turnover — requiring 100 per cent usability in cafeteria;

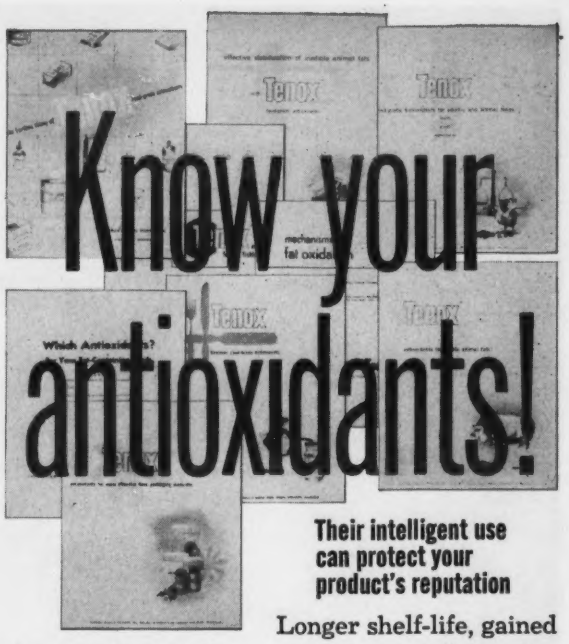
7) preparation by untrained personnel from simple, written instructions — or no instructions;

8) low cost per man per day;

9) provision for unusual stress-situation dietary needs via a minimum of "special food" supplements.

All foods had to have a one-yr shelf life, though it finally was determined that they would be replaced every six months (and served, when thus "of age," in the company cafeteria).

continued next page



Know your antioxidants!

Their intelligent use can protect your product's reputation

Longer shelf-life, gained through the intelligent use of antioxidants, has often spelled the difference between success and failure in marketing a food product. Key to the intelligent use of antioxidants is an understanding of their function. An easy way to obtain that understanding is through the following pieces of literature:

- **Tenox—Eastman food-grade antioxidants**
- **The Eastman family of Tenox food-grade antioxidants**
- **Which antioxidants for your fat-containing foods?**
- **Tenox antioxidants for more effective food packaging materials**
- **Tenox antioxidants for edible animal fats**
- **Effective stabilization of inedible animal fats with Tenox**
- **Tenox feed-grade antioxidants for poultry and animal feeds**
- **Tenox antioxidants for the fishing industry**
- **Mechanisms of fat oxidation**

Eastman manufactures all the principal types of food-grade antioxidants in use today. We can, therefore, suggest without bias the most effective antioxidant for your product. For any of this literature about antioxidants, write to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

Tenox Eastman food-grade antioxidants

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This is applesauce whipped to 1000% overrun

Just add 1% *Myverol® Distilled Monoglycerides, Type 18-00,* to the sauce, heat, and whip (hot or cold).

The same technique produces beautiful whips from pears, bananas, peaches, tomato juice, grape juice, sweet potatoes, all sorts of strained or pureed fruits and vegetables.

Can you see a new idea in toppings, canned in the normal manner and marketed —ready to heat, stir, and whip? Can you see spray-, drum-, or foam-dried purees, ready to be whipped after reconstituting with hot water?

Like to try some ideas of your own? For more information and samples of *Myverol Distilled Monoglycerides,* write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

distillers of monoglycerides made from natural fats and oils

DPi

Also . . . vitamin A in bulk for foods and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

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At the outset, it was decided that the metal can was the ideal container for the project. Its value as a protective container had been proven conclusively in the Civil Defense Administration test at the Atomic Energy Commission Nevada Test Site in 1955.

The foods chosen — ranging from freeze-dried steak, bacon and eggs to canned bread and cake — were as close as possible to normal diet patterns, and also closely related to popularity patterns in the company's own cafeterias.

Out of 50 food items, exclusive of gum and lozenges, 33 are canned, and include: nine fruits or fruit juices, seven vegetables, eight entree items (including ham, corned beef, spaghetti and meat balls, chicken, bacon, tuna, shrimp), four soups, three bread or cake, two beverages.

Number 10 cans are used for spaghetti and meat balls, corned beef, ham and freeze-dried shrimp. Other can sizes range from six-oz cans for individual fruit juice service to 2½'s or 303's to prevent waste.

The New Jersey Bell 3-Day Menu Cycle developed is complete with instructions as to portion size, preparation, number of servings and proper paper service to be used — everything necessary to know about each meal complete on one looseleaf page.

In addition, an alternate procedure allowing satisfactory menu preparation, may be used should water or heat supply become unavailable.

In this case, vegetable juices are drained and used in like quantities as "water" for preparation of soups, potatoes, eggs, shrimp, oatmeal and puddings in place of drinking water.

Assistance with the project was provided by Allied Food Service Corp., 120 E. 56th St., New York, N.Y., and National Canners Association, 1133 20th St. N.W., Washington, D.C.

Nabisco crackers break into survival picture

Seven-lb tins of "Survival Ration" crackers (in minimum 10,000-lb orders) are being made available to interested Federal, state and local Civil Defense organizations, govern-

mental agencies and industrial groups by National Biscuit Co. Cost is 35 cents per lb.

Each tin provides enough food to sustain one person for a week. Only added requirements are a two-qt daily water supply and a can opener.

Eating 66 of the crackers each day — along with the water — gives 2000 calories, or enough to sustain a normal adult in good physical health for up to two weeks.

Made with wheat, corn and soya flour, cane and corn sugar, cottonseed oil shortening, salt and leavening — and mildly fortified with vitamin B_1 — the crackers are not nutritionally complete "super crackers," but merely an adequate short-term food supply.

They are deliberately low in protein and salt in order to minimize water consumption — in fact, taste like animal crackers.

The hermetically sealed tins — designed to keep contents fresh for at least five years — hold 18 waxed packets. Each packet contains 13 double crackers.

Originally developed for New York State's Civil Defense Commission, the crackers will not be offered through retail outlets. However, individuals may be able to obtain supplies through mail-order firms.

Newest patriotic product—complete 'meal in a can'

A nutritionally complete liquid meal in a can with a variety of daily uses — such as a substitute for skipped regular meals — is being proposed as an all-in-one food supply for civil defense emergencies by Edward Dalton Co., a division of Mead Johnson & Co., Evansville, Inc. (who also make "Metrecal").

"Nutrament" contains all elements known to be essential for proper nutrition — protein, fat, carbohydrate, vitamins and minerals — in amounts scientists have established as desirable.

Taste and appetite satisfaction reportedly meet normal usage food standards, as contrasted with food items usually associated with emergency rations.

Unique advantage of "Nu-

The Sign of a Real Bargain in an IRON BODY GATE

Cost-Per-Year is Lower... Initial Cost no Higher

For generations extra-quality, extra-stamina Jenkins Iron Body Gates were regarded as the best buy for the money ... even though they cost more to buy. Lower maintenance expense and extra years of service more than offset any price differential.

Today, these widely favored valves are an even bigger bargain in true value. *You pay no more for them at the start!* And you get exactly the same high quality and perfection of design for your money.

You can satisfy all your needs from the complete line of Jenkins Iron Body Valves. Jenkins Bros., 100 Park Avenue, New York 17.

AVAILABLE FROM LEADING DISTRIBUTORS EVERYWHERE

JENKINS
MOST TRUSTED TRADEMARK IN THE VALVE WORLD
VALVES
JENKINS SINCE 1864 Jenkins Bros

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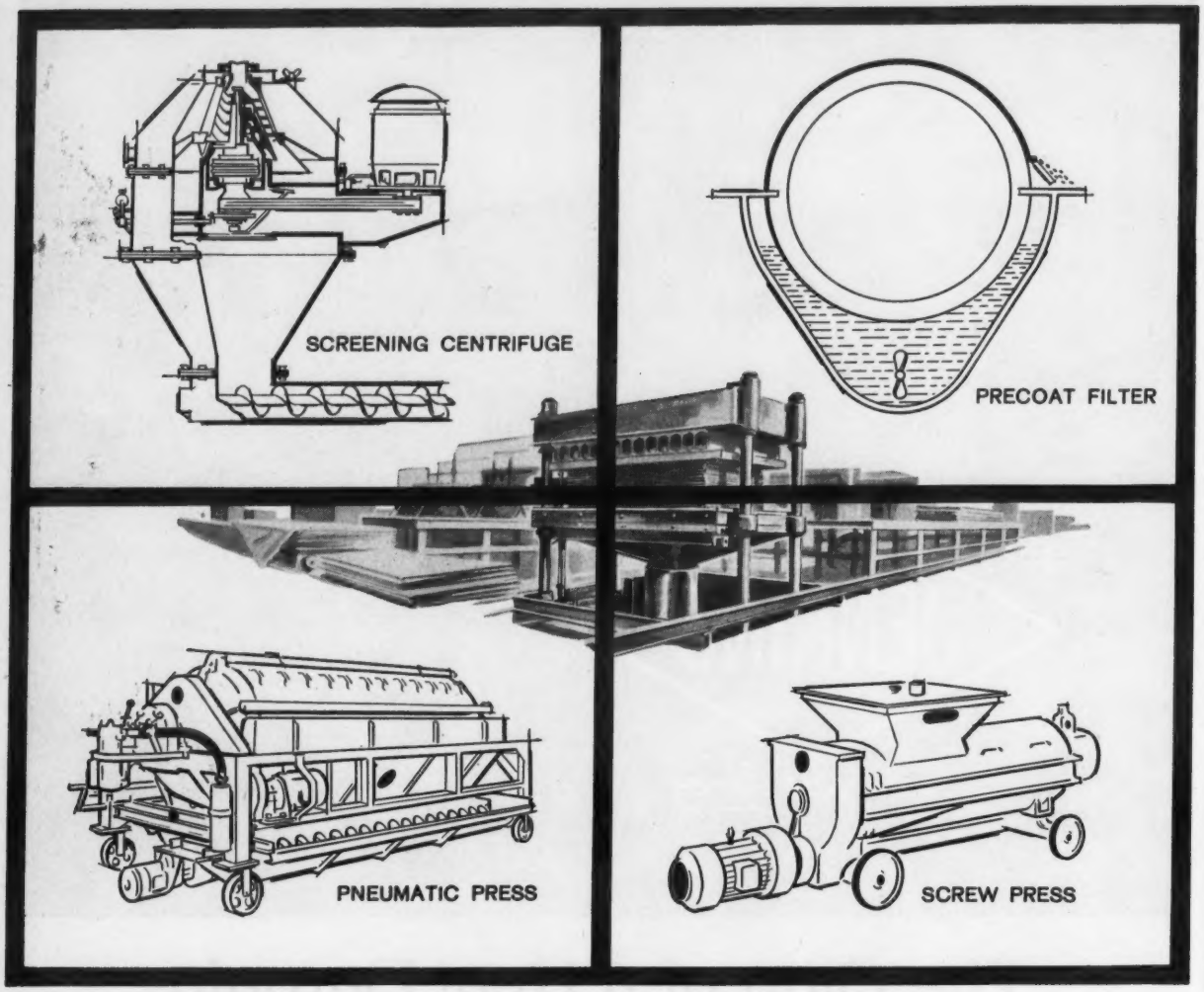


Pectinol® makes automatic equipment more practical for juice processing

With the help of PECTINOL enzymes, many fruit juice processors are now replacing conventional, batch hydraulic presses with modern efficient equipment. In crushed fruit, PECTINOL enzymes break down pectins in pulp structure and give faster release of juice. In the extracted juice, the enzymes act on colloidal pectin which keeps tiny pulp particles suspended through protective-colloid action. Breakdown of the protective colloid allows the pulp particles to settle and be filtered. Such pectin hydrolysis is frequently a lifesaver in unblocking bottlenecks encountered in running the new equipment. For example, in Garolla and Willmes presses, PECTINOL reduces the troublesome slipperiness of Concord grapes. In using a precoat filter for clarifying apple juice extracted by a screening centrifuge, PECTINOL action on the high content of solid material avoids clogging of the filtering surface. Whatever fruit you process, whatever equipment you use, it is likely that PECTINOL enzymes can help you increase processing efficiency and give your juice more brilliant clarity.

Write to Dept. SP-15 for information, technical literature, and enzyme samples.

ROHM & HAAS

PHILADELPHIA 5, PA.

PECTINOL

7486 on Reader Service Slip.

trament" — each can contains 9.5 oz of water, a critical factor in event of nuclear disaster when normal water supplies very likely would be contaminated.

Little echo from an old chow line

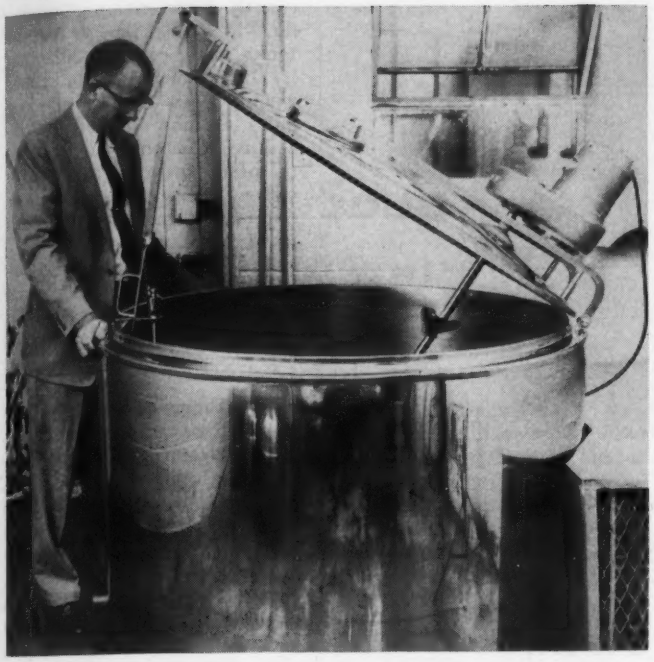
During this Civil War Centennial, the Army Quartermaster appropriately has reissued in limited supply a classic little work — Horsford's "The Army Ration of 1864."

Written by the 19th century Harvard professor generally regarded as the father of the modern military ration — himself a student of the great German pioneer in agricultural chemistry, Liebig —the booklet displays throughout its 44 pages Prof. Horsford's awareness that too much "hardtack" in phraseology was as deadly as a steady diet of the real thing in a military campaign. In short, he proves to be an articulate scientist.

His 97-yr-old work has a particularly modern ring when he discusses such "modern" ration components as canned meats (SPAM?) and desiccated (dehydrated) vegetables.

For copy, write Dr. Walter L. Necker, chief, Library Branch, QM Food & Container Institute, 1819 W. Pershing Rd., Chicago 9, Ill. — requesting Library Bulletin, Supplement No. 1, July 1961, title as above.

"All right . . . are you coming out, or are we coming in after you? . . ."



Dr. George H. Watrous, Jr., checking experimental, 205-gal, direct-expansion milk tank built according to customary design, fabrication and finishing methods used by Groen Manufacturing Company for their regular line of Type 302 SS farm holding tanks

Proves lower-cost, type 202 SS suitable for milk

3½-year tank test at Penn State shows low-nickel SS equivalent to traditional Type 302

TYPE 202 STAINLESS STEEL, heretofore never used for milk-contact areas, was tested in an experimental milk tank at Penn State. In continuous service since January 1957, the tank — which was made completely of the high-manganese, low-nickel stainless — in no way affected high-quality taste or bacteria count of milk.

Comparatively new Type 202 possesses corrosion resistance and mechanical properties (see table right) which are comparable to common Type 302 steels, and can be easily cleaned and sanitized. According to a report by Dr. George H. Watrous, Jr., associate professor, Dept of Dairy Science, Pennsylvania State University: "Tank remains in perfect condition, free of pits, stains or discoloration. The finish, both interior

Typical tensile properties for strip material, mill-annealed in continuous annealing furnace

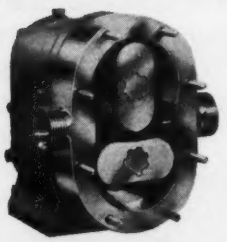
Property	Type 202	Type 302
Yield strength 0.2% Offset, psi	50,000	35,000
Tensile strength, psi	100,000	90,000
Elongation % in 2 in.	60	50
Hardness Rockwell B.	90	85

critical pumping problems are

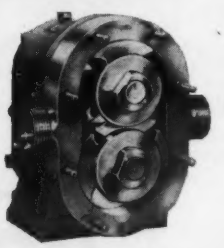
DUCK SOUP

with WAUKESHA pumps

the size . . . the type . . . specifically for your application.



WR DUALOBE® RUBBER ROTOR PUMP



DO TWIN BLADE METAL ROTOR PUMP

Waukesha offers greater selectivity of sanitary positive displacement pumps than any other manufacturer. Hundreds of complicated pumping problems have been simplified by Waukesha's engineering experience.

A Waukesha pump can handle your product whether it be highly viscous, semi-liquid or a combination of liquid and solid. Products containing solids you wish to preserve are carefully pumped without damage to the discrete particles. A Waukesha pump can handle capacities from 0 to 300 G.P.M., pressures up to 150 P. S. I. and temperatures up to 240° F. Only Waukesha offers you a choice of metal or rubber rotors, 316 stainless steel or Waukesha Metal (nickel alloy).

Thousands of Waukesha pumps provide the heart of liquid handling systems in plants throughout the world. Guaranteed performance is assured when you choose a Waukesha.

Write for Bulletin P-330.

WAUKESHA FOUNDRY COMPANY

PUMP DIVISION

WAUKESHA FOUNDRY COMPANY, DEPT. 92-H, WAUKESHA, WISCONSIN

District Sales Offices: New York, Atlanta, San Francisco.
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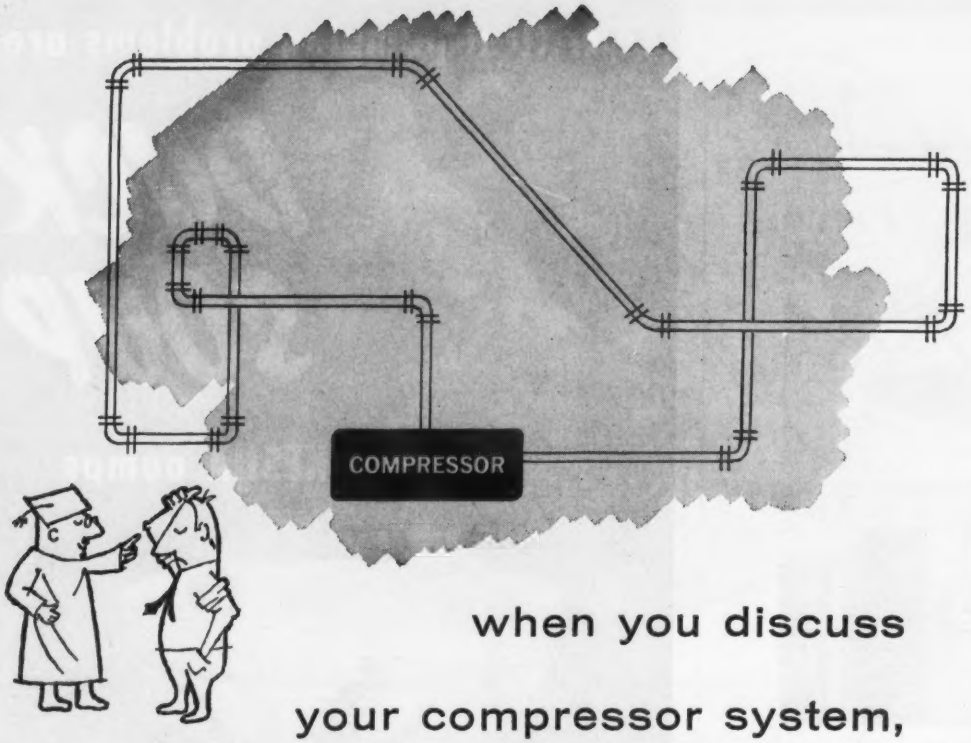


when you discuss

your compressor system,

what does **PAR** mean to you?

THE WORD HAS MANY DEFINITIONS

PAR to the golfer means the number of strokes allotted per hole or for the round of golf.

PAR to the investor is the established nominal value of a security or certificate of stock.

PAR can be an amount which is taken as an average or mean... an average level, etc.

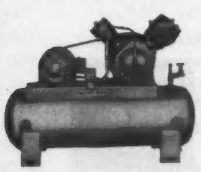
Possibly the only connotation you might place on PAR is the expression that it's either up to PAR or not up to **PAR,** meaning up to standard.

BUT THERE'S ANOTHER MEANING TOO

At Ingersoll-Rand Company we like to think of PAR in terms of a "PLANNED ANNUAL REVIEW" of a customer's air power system. The newest, most efficient air-operated devices are only as effective as the power that drives them, and usually low air pressure is the reason for equipment not functioning properly.

An Ingersoll-Rand AIRengineer will be happy to help you plan present or future air requirements and keep you abreast of the latest developments in tools and air systems. He will make sure you get the biggest dividend on your payroll dollars from a carefully PLANNED ANNUAL REVIEW of your air power system. Let us schedule a PAR for you now.

Air-cooled compressors 1/2 through 125 horsepower



Type 30 Compressors
1/2 through 20 hp
pressures to 250 psi

Type 40 Compressors
25 through 125 hp
pressures to 125 psi

Ingersoll-Rand
248A3 11 Broadway, New York 4, N.Y.

OTHER I-R COMPRESSORS TO 7500 HP—PRESSURES TO 5000 PSIG.

7488 on Reader Service Slip.

and exterior, looks as good as new."

Experimental tank is given exactly same cleaning procedure at Penn State as regular tanks made of Type 302; that is, it is cleaned four times weekly with regular alkaline dairy cleaner at 120 F. Procedure after emptying milk is to preflush with luke-warm water, clean within hour or two, rinse, sanitize and refill at next milking.

To remove hard-water deposits, all equipment is given supplemental cleaning about once a week with standard organic-acid dairy cleaner at 120 F.

In addition to normal sanitizing, in which iodophor-containing sanitizer is used, a six-month program using chlorine-base sanitizer (200 ppm concentration) was included in test.

Type 202 stainless steels match familiar Type 302 (18 per cent chrome - 8 per cent nickel) in many respects, and are difficult to distinguish from the latter. In color, high-manganese stainless is more brilliant, silver-like in appearance than high-nickel steel.

Experimental tank was made from Type 202 sheets furnished by Allegheny Ludlum Steel Corporation, leader in development of this alloy. It was fabricated by Groen Mfg. Co., 1900 Pratt Blvd, Elk Grove Village, Ill.

Cost of metal is from three to five per cent lower than Type 302; fabrication cost, according to F. Groen, Jr., should be about the same in the long run. END

"I understand you invented this new sour pickle recipe yourself C.B."

- **New processing techniques**
- **New multi-million plant**
- **New pull-tab aluminum can**

Campbell Soup enters dry soup field

MAJOR NEW SPLASH in the increasingly competitive dry soup mix picture has just been made by the oldest soup-maker of them all — 92-yr-old Campbell Soup Company. "Red Kettle" line of dry soup mixes is the company's answer to the mounting consumer demands for this type of product. An outstanding "fruit" of Campbell's Food Science and Nutrition Laboratories (FP, April 1961, pp 29-30), the new dry soup mixes are made at Camden, N.J., in a new multi-million-dollar installation.

The plant is set up for special drying processes (including freeze drying), unique and new packaging methods — all in carefully controlled dehumidified areas.

Before taking the plunge into dry soups, Campbell conducted extensive laboratory and consumer-panel testing, both on the product line itself, and on the somewhat unconventional packaging.

In competitive tests, a large consumer panel favored the quality and flavor of the new dry soup line by a substantial margin.

The small, hermetically sealed tear-tab aluminum can, Campbell-developed and selected because of its product quality protection and its physical ruggedness, also had to pass a large-scale consumer-approval test.

The new canned dry soup mixes — being introduced on a market-by-market basis — will supplement the 29 condensed soup varieties, the 20 ready-to-serve varieties and the eight frozen varieties that have made Campbell the world's largest producer of soups. END

No conventional pouch! "Red Kettle" dry soup mix comes in easy-open pull-tab aluminum can — packed two to a paperboard package for effective shelf display

MANY USES!
VIKING 8171 "SANITOR" PUMPS FIT HUNDREDS OF APPLICATIONS
MEETS 3A SANITARY STANDARDS
Many uses! In dairy and food plants throughout the world they're saving with "Sanitors" in a wide range of pumping jobs. You can, too. Available in 18 models, featuring easy take-down.
• No tools needed
• Smooth and Positive Delivery
• Fast self priming
• Rapid cleaning
• Non-leak operation
VIKING PUMP CO.
Cedar Falls, Iowa, U.S.A.
In Canada, It's "Roto-King" Pumps

- 35-50-90 G.P.M. Sizes
- For Mounting On Other Equipment
- For Mounting On Individual Motorized Units

For Complete information, write for catalog **FEP**

See Our Catalog In Sweet's Plant Engineers File

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NIAGARA "No-Frost"®

Niagara "No-Frost" users gain better profits with continuous production giving them lower unit costs for labor. "No-Frost" freezers give constant low temperature and full, uniform cold air circulation never interrupted by frost, always assuring uniform freezing temperature and high quality. Niagara "No-Frost" freezes products unpackaged with no breakage loss. You synchronize production and packaging (either retail or bulk) with no rescheduling or waste of labor.

Use Niagara "No-Frost" to freeze any product, with temperatures always constant, at any production rate and time schedule.

Use Niagara "No-Frost" with assurance of success. 30 years' experience proves it produces the best quality in high production processes with low costs in operating and upkeep. *Write for Bulletin No. 144.*

NIAGARA BLOWER COMPANY
Dept. FP-9 405 Lexington Ave., New York 17, N. Y.
District Engineers in Principal Cities

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makes the **BIG** difference

BONGARDS' POWDERED WHEY AND BON-O-LAC (Baker's Blend) . . . is made only from the whey from our own natural cheese in our own plant. Immediately after the whey is separated from the curd, it is pumped through stainless steel pipes to the most modern whey processing equipment in the country where it is condensed and powdered by an exclusive spray process, then sealed fresh in special bags. This FRESHNESS eliminates off odors and non-whey flavors that are encouraged by the normal delays of holding and hauling.

BONGARDS' POWDERED WHEY can help you offer better products at lower cost — whether you produce BAKERY GOODS, CANDIES, ICE CREAM, SHERBETS, PREPARED MIXES, SAUSAGES, MEAT PRODUCTS, CREAMED FOODS . . . or hundreds of other products where a better, lower cost dairy ingredient will support and accent the natural desired flavor of your product.

You'll appreciate the instant moisture absorption and perfect dispersion in your ingredient blending — the particle size can be varied to suit your needs. Being non-hygroscopic, Bongards' Powdered Whey will never cake or harden.

✓ Send for working samples
✓ Bakers ask for BON-O-LAC blend

BONGARDS' CREAMERIES
Dept. P • BONGARDS, MINNESOTA

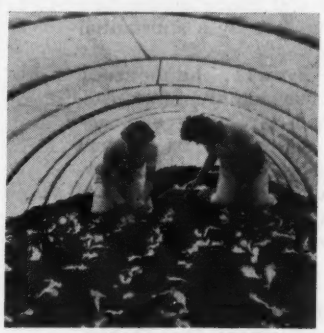
7491 on Reader Service Slip.

Proof against wind, hail and small boys

Glass-free "greenhouses" that provide inexpensive, portable cover for crops have been impressive in commercial field tests. In one trial, field-grown leaf lettuce harvested 19 days ahead of normal market date brought a cash bonus of $1.76 per carton.

Each of the two models is a "quonset-type" tubular framework covered with a sleeve of a new Du Pont polyethylene film. One, trademarked "Porta-Green," is for portable row covering, with each curved section 11 ft wide, 3½ ft high at midpoint and 5 ft long.

The other, a semi-portable greenhouse called "Perma-



Green" (illustrated), is 22 ft across, 9 ft high, 5 ft long, and is intended for erection on an inexpensive anchored foundation.

Supplier: Waco-Porter Corp., 3563 Wooddale Ave., Minneapolis 16, Minn.

7492 on Reader Service Slip.

To catch a thief . . .

. . . before he can pilfer from your plant, establish a Security Department and screen him out as an applicant, recommends the American Society for Industrial Security, Suite 431, Investment Bldg., Washington 5, D.C.

Poor security costs U.S. companies hundreds of millions annually in losses through pilferage, in employment of undesirables predestined to failure and in loss of company secrets and invaluable know-how.

Highly Intimate Blends in 1 to 2 Minutes

Blends while discharging; No segregation or flotation

Sturtevant Rotary Blenders start 4-way blending while charging, continue it during discharge, thus producing highly intimate, even blends of dry and semi-dry materials – within 3 to 5 minutes of start of charging.

Six *complete* blending cycles per hour are common. And Sturtevant's special action produces no particle reduction, cleavage or attritional heat – is highly effective yet gentle and safe even with explosives.

Receiving
Scoops cascade material as drum rotates. Movement forces material from both ends to middle. Thus blending is 4-way right from start of charging.

Discharging
Single gate controls charge, discharge. Blending continues throughout discharge phase. Result is no segregation or flotation — highly intimate, even blends.

Self-cleaning, dust-sealed drum; one-man accessibility

Operation of Sturtevant Blenders is self-cleaning – drum interiors are completely dust-sealed. For inspection of all models, one man simply loosens a few lugs to remove manhole cover – quickly and easily.

Nine standard models with capacities to 900 cu. ft.

10 cu. ft. Sturtevant Blender at U.S. Steel Corp.'s new Applied Research Laboratory (Raw Materials Division) in Monroeville, Pa. This unit handles batches up to 500 lbs. — is ideal for pilot work and small runs.

Automatically controlled, three 50 cu. ft. Sturtevants blend chocolate powder and other ingredients for Hershey Chocolate Corp. Operating in a group, each Blender can process more than a ton per batch. Quick accessibility and self-cleaning features keep maintenance to one hour per week.

Fully or semi-automatic, or manually controlled operation

Constructed of carbon steel, stainless steel or Monel metal, Sturtevant Rotary Blenders are engineered to fit each customer's needs – can be supplied with injector sprays and any desired control system.

For more on Sturtevant Blenders, request Bulletin No. 080B. (Bulletins also available on Mixers, Air Separators, Micronizers, Crushers and Grinders.) Write today. STURTEVANT MILL CO., 122 Clayton St., Boston, Mass.

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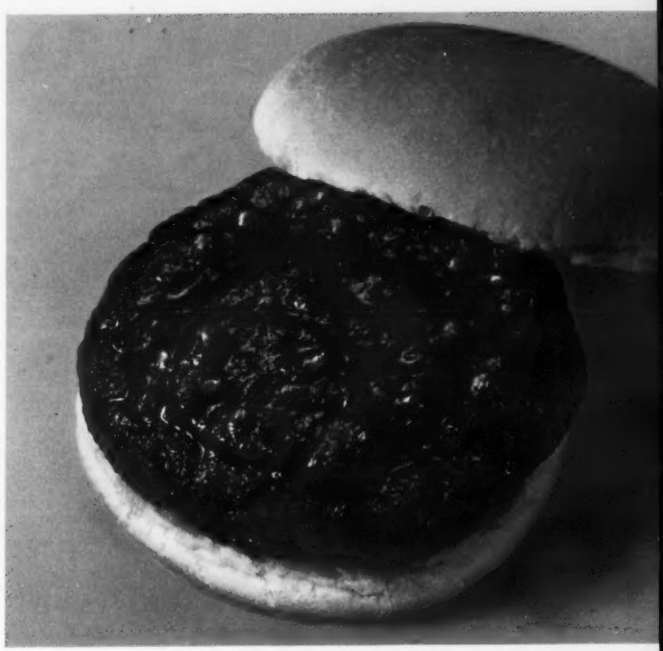

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ONE OF A SERIES OF CHATS ABOUT THE CONSERVATION AND CONTROL OF HEAT

SARCO TOPICS

WHY THE BIG STRAIN?

It's tough to keep gases and liquids "clean" as they run through a pipe. They drag impurities along, which can make even plain water a trouble maker, let alone more sophisticated juices. That's because water, as a liquid or steam, is intimately involved with vital equipment like steam traps, temperature regulators, or tools. Meters, burners, nozzles, and pumps, too.

By this time you must realize we're going to talk strainers, don't you? A good, stout subject, of interest to all who feel production belongs up and costs belong down. Sarco makes strainers for water and condensate, steam, oil, air, gas and other piped fluids . . . dozens of different sizes and types and ratings of strainers to match every application need. Even our line of plain and simple strainers is built for super service. These are pipeline strainers, types AT, BT, and CT, which are designed for 250, 250 and 600 psi non shock, respectively, and 475°, 450° and 750°F. temperature ratings. Standard screens are heavy-gauge, perforated brass or stainless steel. Sarco specializes in screens that can withstand abnormal pressure differentials created by accumulated sediment.

Next, Sarco's flanged strainers, type D. These come in larger sizes, right up to 12", and are available in standard or extra heavy types.

And finally, *Sarco scraper strainers*, manual or motorized. These are the really eye-popping models, and if you can't use one yourself — well — you'll just have to get your kicks elsewhere.

Examples? Take Inland Steel Company at East Chicago, which gets water from Lake Michigan to cool its large air conditioner condensers. The water used to pass through traveling screens, but still contained fine sand. Clogging! Heat under collars! Frequent cleaning required! Sometimes practically no air conditioning on hot days. (Isn't that always the way?)

The Inland Steel people installed Sarco Rotary Scraper Strainers, Type VRS, which incorporate a hand-operated helical scraper knife within the cylindrical strainer screen. A few turns of the crank at regular intervals, and the sand is scraped off the screen, blown clear, and discharged at pressure through a manual valve to waste. Dismantle the strainer? Shut down the unit? Not *this* strainer!

Now, as long as we've come this far, it's only a hop and a skip to the Firestone Tire and Rubber Co. in Akron, Ohio, who also use water in tremendous quantities. They circulate it through tire presses and a cooling tower, and there's no nonsense about it. It *has* to be clean or damage to equipment could be downright catastrophic. When the plant

modernized and enlarged, Firestone replaced their 4" Sarco hand-operated scraper strainer, type VRS, with a larger Sarco 8" model. And while they were about it, they got the motor-operated type, for continuous cleaning.

When we say that companies like these want the insurance of a Sarco strainer, it sounds like advertisingese, but sometimes there just isn't any other way to put it. Sarco strainers *are* insurance at low cost on the operation of your high cost equipment. So when we ask if you have lumps in your pumps, or worries over your slurries, we're *serious*. We've heard everything in the straining line, so why not write us for literature and answers to those special problems you have.

A T-44 IS THE BEST POLICY

Sorry, but we can't leave the subject of insurance without bringing to your attention one of the best little insurance policies any company requiring cooling control could invest in. It's the *self-powered* Sarco T-44 Automatic Cooling Control. No compressed air or electricity is needed, but its advantages are best described in terms of three different plants of just one Sarco customer — Revere Copper and Brass, Inc.

Revere-Baltimore, Md., has cut water use 40 to 50% with T-44's. But in addition to former water waste, Revere had even more problems: possible wet air from uncontrolled cooling of compressor aftercoolers, plus sweating compressor cylinders; variations in viscosity of hydraulic oil and bearing oil; gas generator water waste; unreliability of manual shut-off of water supply when machines were down.

If your ears perk up in sympathy at mention of any of these problems, the results of Revere's cooling control program should bring you to full attention. One large compressor that had gulped 2400 gallons per hour now takes only 420 gallon sips. In addition all the problems itemized above were solved. T-44's are now used on their air compressors, gas generators, and hydraulic oil systems. At Revere-Riverside, Cal., water savings of 50% were experienced, and at Revere-Rome, N. Y., substantial savings were made too.

But after all, wasting water is only one way of wasting money, so let's go on to another matter of interest: the evils of manual control. When cooling water is controlled by hand the temptation to leave the valve nearly wide open is almost overpowering, in order to play it safe if the load varies. Result: overcooling, of course. And varying the flow runs the risk of undercooling. In either case, lowered process efficiency. Answer: The automatic Sarco T-44, which can't be tempted, is meticulously honest, unsentimental, and plain inhumanly practical when it comes to cooling control. You really ought to write for literature. T-44 is your best policy.

SPARE PARTS INSURANCE

As long as we're near the end, and still on this subject of insurance, may we graciously leave you with this valuable tip? No matter how closely a steam trap approaches perfection, some gremlin may cause it to act up. It's conceivable. So, keep on hand a parts list and spares of key parts for your steam traps and other system components. Parts are small and worth their weight in gold when you need them. A Sarco field engineer will make up a suggested list for you, if you tell us what components make up your system.

Might as well even keep a disc or two on hand for your Sarco Thermo-Dynamic Steam Traps, Type TD-50, even though they're so trouble-free our salesmen keep complaining about the lack of replacement parts business. We'll be glad to tell you about this unique steam trap in case you still don't know how miraculously simple and effective it is.

Pardon our monopolizing the conversation in this series of paid communiques, but we're trying our best to interest you in certain subjects that concern us both — to the point where you'll communicate.

7317

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How to reduce the amount of heat required to oxidize fumes and odors

1. **Catalysts to lower combustion temperature**
2. **Heat exchangers to reuse heat**
3. **Process design modifications to further improve thermal efficiency**

R. J. RUFF President,
Catalytic Combustion Corporation

ODOROUS FUMES released from food processing operations have a wide range of effects on people's olfactory senses. In those instances where the character of the odors constitutes an air pollution problem and demands correction, complete and economical destruction of the gaseous contaminants can be effectively accomplished by catalytic oxidation.

Direct flame combustion techniques also are effective, but overall costs are appreciably greater and the inevitably higher temperatures may create additional problems and expense.

Although there has been considerable publicity in recent years regarding the use of catalysts in the oxidation of odorous fumes, it may be well to review briefly the general aspects of catalysis as it is applied to fume elimination prevention of air pollution.

Combustible gases containing organic compounds must first be heated to the particular ignition temperatures of their respective components in order to oxidize or burn them. In the presence of a catalyst, the ignition temperatures required are much lower than would be required by direct heat alone — in some cases as much as 700 F lower.

The purpose of the catalyst, then, is to permit the oxidation to proceed to completion at lower temperatures and at a more rapid rate than would otherwise be the case.

Fumes which are to be oxidized in the presence of a catalyst must first be heated to the catalytic ignition temperature (usually 500-700 F). Then they are passed through the catalyst element where flameless combustion to carbon dioxide and

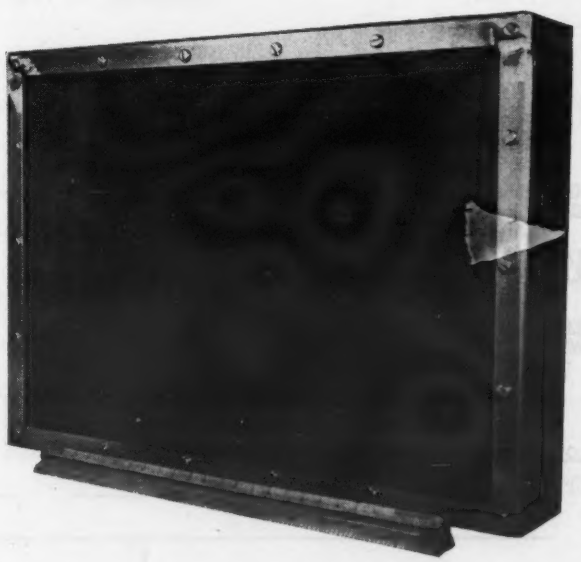


Fig 1. The catalyst employed in the catalytic combustion process usually is constructed in the shape of a rectangular element similar to that illustrated. An alloy channel frame encloses a densely packed medium of nickel-chrome metal in thin ribbon form — this provides the vast supporting area for the active catalyst. A coating of platinum alloys is applied to all surfaces by electrochemical deposition and subsequently conditioned for catalytic activity. Thus the platinum alloy coating is the catalyst and the nickel alloy ribbon material is the catalyst support.

Since the platinum alloys do not enter into the combustion reaction and thus are not consumed, the life of the element is theoretically infinite. This would be true in practice also, except for the effects of inorganic contaminants such as dust and dirt which are normally present in any atmosphere. Over extended periods of operation some of these inorganic contaminants tend to coat the active surfaces, making them unavailable to promote further oxidation by effectively "insulating" them from the fumes passing through the catalyst elements. As normal preventive maintenance, therefore, the catalyst elements are usually given a simple detergent wash once or twice a year to assure continuity of operation.

The catalytic elements are easily and quickly removed from the housing. They are light in weight and unbreakable. No expert supervision is required in disassembly, in handling and in reassembly. All these features contribute to its exceptionally long life.

Many catalyst elements have been in use on process equipment for more than 30,000 operating hours without requiring factory service. When factory attention becomes necessary, the catalyst elements merely are exchanged for newly reactivated elements at nominal cost

water vapor occurs.

The oxidation reaction is exothermic; consequently, when organic compounds are consumed their latent heat energy is released. This heat is transmitted to the air stream, causing an abrupt rise in temperature.

The temperature rise is directly proportional to the concentration and energy content of the combustible portion of the fume-air mixture. In some cases this sensible heat may be made available for profitable energy recovery.

The design of the Catalytic Combustion System for fume and odor destruction for the food processing industry is basically the same as that used for other industrial processes.

Odorous fumes released from the process are drawn by an exhaust fan into a gas-tight, insulated, metal housing. The fumes are preheated by a gas burner or electric heater to the required catalytic ignition temperature, and discharged through the catalyst elements (Fig. 1) where complete combustion occurs without flame.

The clean, hot oxidized gases are either released directly to the atmosphere, or first passed through a heat exchanger where a portion of the heat generated by the oxidation reaction is recovered. This recovered heat can be used to help preheat cold fumes coming from the process, to supply all or a part of the heat needed by other food processes, or for space heating purposes.

Systems for kettle cookers

Many food processing plants utilize kettles or vats for the cooking or frying of such products as potato chips, corn chips, nuts, bacon rind, fish sticks and other prepared meat products. Also included in this group is the extraction or rendering of edible or inedible fats and oils from vegetable, animal or fish by-products.

In cooking operations of this type, vaporized oils and fats are released and exhausted along with large volumes of steam and air. Where the process exhaust creates an air pollution problem and requires correction, complete destruction of the odorous fumes is possible by the utilization of the Catalytic Combustion System, such as is shown in Fig 2.

As illustrated, the fumes from a number of kettle stations, along with a sufficient supply of air for combustion needs, are drawn into the inner duct of a double manifold leading to the Catalytic Combustion unit.

Within the unit, the fumes are preheated by a gas burner to the required catalytic ignition temperature and discharged by a blower through the catalyst elements where the contaminants are oxidized. The clean, hot effluent gases are discharged to the atmosphere via the outer duct of the manifold.

Double manifolding serves a two-fold purpose. First, it retains the vapors from the kettles in the gaseous state and prevents condensation in the duct system. Second, it acts as a heat exchanger, utilizing the heat generated by the oxidation of the fumes to help preheat the colder incoming fumes, thereby reducing fuel consumption of the preheat burner to a minimum.

Catalytic Combustion Systems of this type have been in service for periods as long as three years, for disposing of the fumes released from the cooking of a wide variety of vegetable and fish oils, deep fat frying of corn chips and similar operations.

Self-sustaining system

When a high volume of odorous fumes having a low energy concentration is to be handled, the self-recuperative system shown in Fig 3 provides a practical means for effectively and economically oxidizing them.

The heat exchanger assists in the gasification of the air-borne organic particles in the exhaust stream and, at the same time, transfers sensible heat from the hot, oxidized gases to the cold fume stream entering the system.

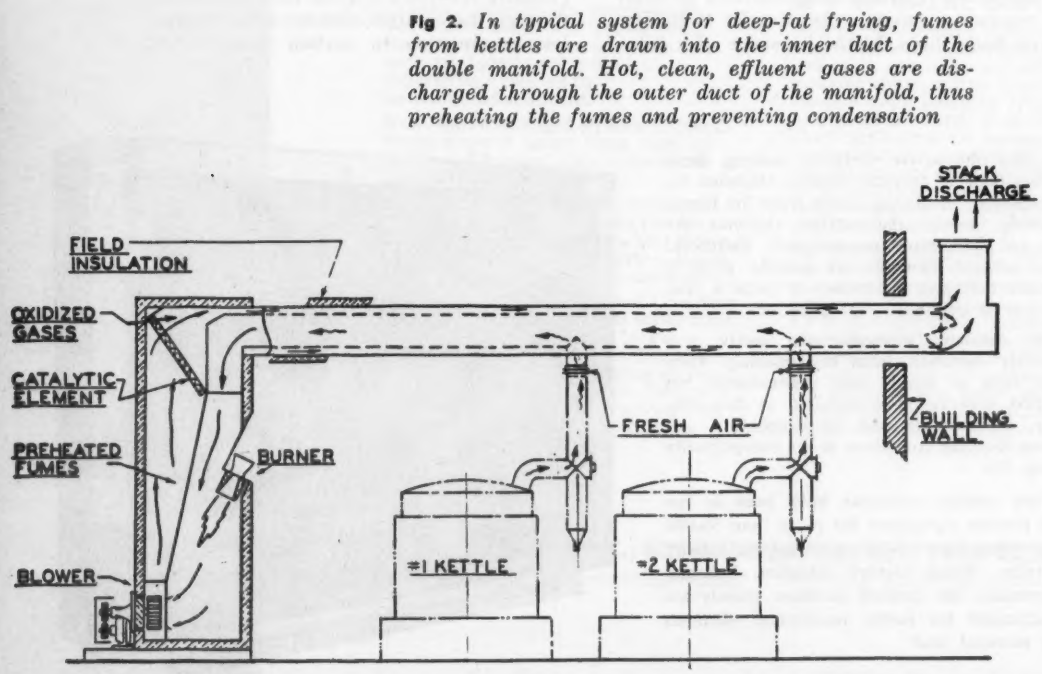
Once the unit is in operation, the heat recovered from the hot oxidized gases is often enough to bring the incoming fumes to the required catalytic ignition temperature, whence the preheat burner is reduced to pilot and the unit becomes self-sustaining.

Systems of this type are now being used in capacities ranging from 500 to 65,000 cubic feet per minute.

Even when the odorous contaminants have no measurable heat value (concentrations in the order of 100 ppm) their destruction can be accomplished by utilizing the self-recuperative design with less than 5 Btu of external heat added for each cubic foot of fumes handled. In contrast, when oxidation by direct heat is employed — without catalysts and without recuperation — the external heat required will exceed 25 Btu per cubic foot of fumes handled — 20 Btu per cubic foot of fumes more than for catalytic combustion.

Catalytic systems of the self-recuperative type have been applied to a greater extent in fields other than the food processing industry, such as organic chemical manufacturing where hundreds of sys-

Fig 2. *In typical system for deep-fat frying, fumes from kettles are drawn into the inner duct of the double manifold. Hot, clean, effluent gases are discharged through the outer duct of the manifold, thus preheating the fumes and preventing condensation*



tems have been in service for periods up to ten years. More recently, this system design has been applied successfully to exhaust gases from potato chip fryers and meat smoke houses.

Modified roasting system

An example of equipment design modification which eliminates the need for external air corrective equipment is shown in Fig 4. Illustrated is a Catalytic Heater System installed at the M J B Company plant in San Francisco. It performs the dual function of supplying process heat to a rice browning operation, and simultaneously destroys the exhaust gases and chaff released from the browning operation.

Fumes from this operation contain vaporized oils and chaff, and enter the Catalytic System at about 400 F.

Upon entering the system housing, the fume stream is split. One portion passes directly to the recirculating fan. The other passes across preheat burners which raises its temperature to 750 F. after which it passes through the catalyst bed.

Both the fumes and the rice chaff are consumed while passing through the catalyst bed. The fume concentration is low in comparison with many other industrial processes because only a temperature rise of about 50 F. occurs during combustion. The temperature of the oxidized gas stream is therefore about 800 F.

A portion of the hot, clean, oxidized gases leaving the catalyst bed is diverted through a manually-set dampered connection to the recirculating fan and along with a portion of the fume stream returned to the rice browner at 550 F, the temperature of the roasting operation.

The remainder of the oxidized gases is discharged to the atmosphere via the heat exchanger tubes in order to transfer the maximum practical amount of sensible heat to the incoming fresh air supply to the rice browner. The discharge gases from the browner are odorless, colorless, and contain neither eye irritants nor chaff, meeting all requirements of air pollution control regulations.

Self-recuperation, accomplished by the heat exchanger, substantially reduces the overall fuel consumption for the process, when compared with a conventional direct gas-fired heater system having no provision for decontaminating the exhaust gases. (Specific figures here would be much more convincing.)

Further, the initial and operating cost of separate, external corrective devices is eliminated. END

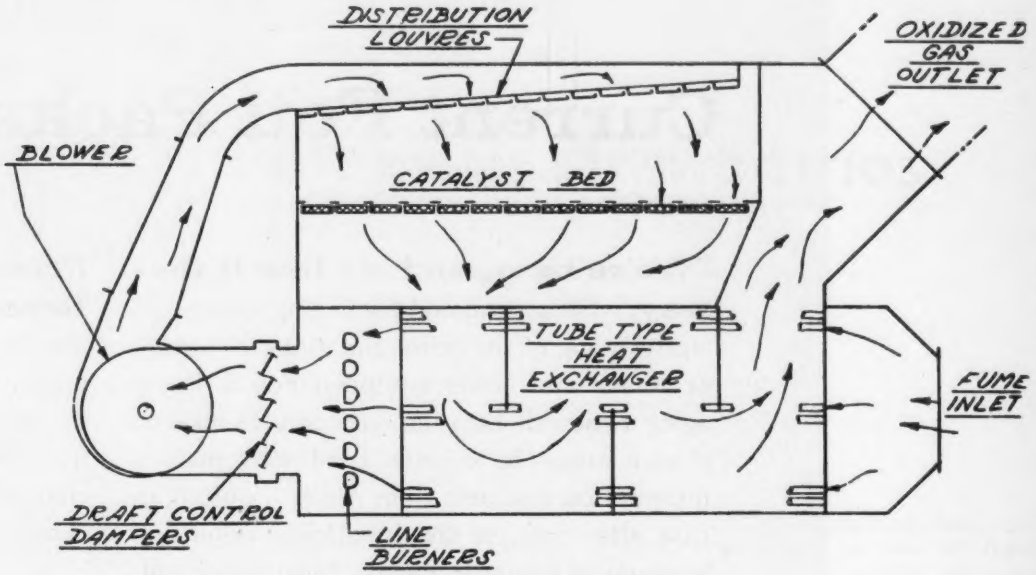
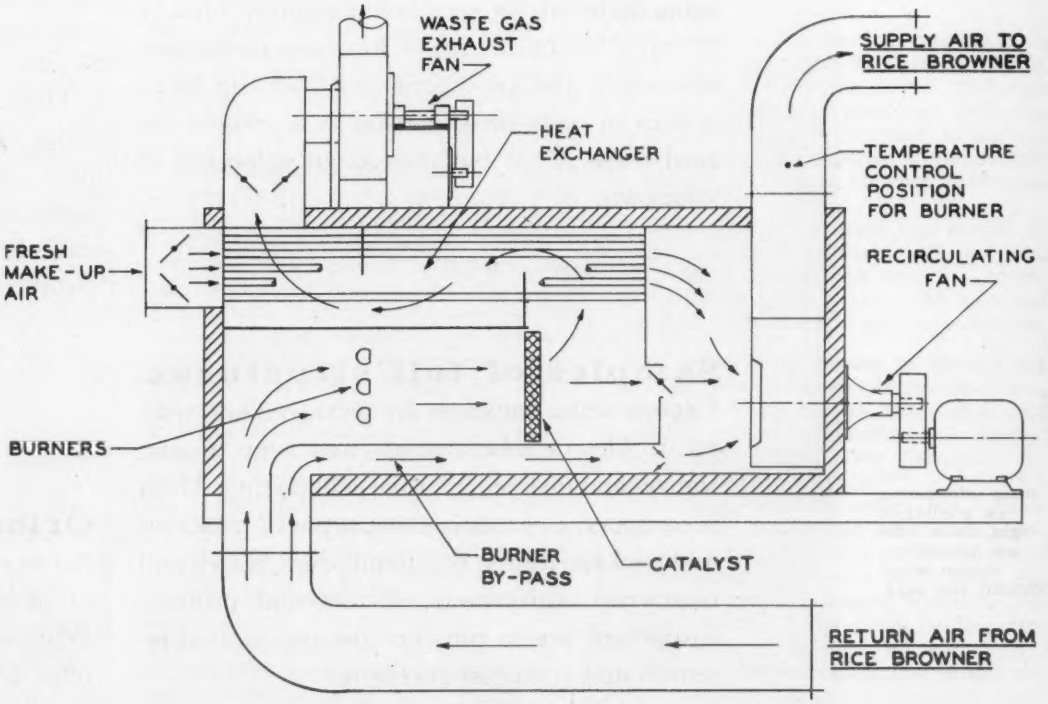


Fig 3. *In self-sustaining system more of the heat generated by oxidation of the fumes is transmitted to the incoming fumes, so that after start up the burners can be shut down*

Fig 4. *In modified rice roasting system, fresh make-up air picks up heat from exhaust gases in a heat exchanger, is mixed with a portion of recirculated fumes at 400 F and a portion of the hot oxidized fumes at 800 F so that the supply air to the rice browner is at about 500 F, the temperature of the roasting operation*



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Samples of foil structures. Experimental packages are produced and tested in Alcoa's laboratories—and sent to customers and prospects for parallel testing. Alcoa is equipped to produce most types of packages and package forms. Foil laminators, pouch and overwrap equipment, slitters and printing equipment are in constant use on original research and customer problems.

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Mexican strawberries

— less foreign threat than domestic 'wedge'?

R. H. GRODER
Fruit and Vegetable Marketing Specialist
Oregon State University

WHY AN ANNUAL IMPORT of 25 million lb of frozen Mexican strawberries should be such an important factor in price determination for strawberries in this country has been anyone's guess — and everyone has been guessing.

Perhaps it's because the buyers want to use Mexican berries as a wedge to split the U.S. industry into little pieces — individual processors or areas — and then play one piece against the other.

This common practice among buyers and sellers occasionally works — particularly if factual economic information is not readily available and carefully disseminated, as in this country, by the many information collecting and disseminating agencies of USDA.

In Mexico, which does not have the trained personnel or the agencies to perform these important functions necessary in buying and selling, estimates are "guesstimates," and one is as good as the other.

For example, facts relative to quantity of berries imported into this country during 1961's first half were not known until July 18.

Official data gathered by the U.S. Department of Commerce from the Tariff Commission usually is two months late. Therefore, May imports were not reported until July — and this two months' delay in reporting receipts of frozen strawberries led to much speculation as to what the official release would show.

Such controversy-breeding speculation could be eliminated. If the U.S. industry would make known its needs to the proper USDA authorities, receipts of imports at the various points of entry probably could be obtained on a weekly basis, instead of on a monthly basis, with a two-month delay.

Actual imports of Mexican frozen strawberries into the U.S. during the five-month period through May totaled 23.9 million lb. These higher peak-season imports, coupled with an over-all lower total production than in 1960, led to the conclusion that volume of imports of Mexican berries between May 15 and the rest of the calendar yr will prove less than during corresponding months of 1960.

The actual situation prevailing in the Mexican strawberry industry became evident as result of a trip to Mexico made by the writer early in May.

Mexican processors and growers were not as optimistic about future expansion as we in the U.S. had been led to believe. In fact, a good many were in process of transferring their resources to other alternatives.

Mexican production has been shifting from one area to another due to disease, insect and water problems. Although acreage has been maintained, and has been showing some increase during recent years, it is the writer's opinion that total acreage is only between 12,000 and 14,000 acres.

Total production would run around 48 million lb, with less than half this total used for processing and export — to the U.S., Canada, Australia and a small amount to the Latin American countries.

The processing plants in Mexico are modern, and equipped with stainless steel. Sanitary conditions are near ideal, and quality control is handled by trained technologists. Key plant personnel are given in-service training.

Although labor is cheap, the volume being used makes total labor costs comparable with this country's. Some plants use as many as 350 women to stem, cap and sort berries. (Capping is done in the plant because of the great hauling distances from the field.)

Certain plants are changing in this regard, and are adopting improved han-

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Total production would run around 48 million lb, with less than half this total used for processing and export — to the U.S., Canada, Australia and a small amount to the Latin American countries.

The processing plants in Mexico are modern, and equipped with stainless steel. Sanitary conditions are near ideal, and quality control is handled by trained technologists. Key plant personnel are given in-service training.

Although labor is cheap, the volume being used makes total labor costs comparable with this country's. Some plants use as many as 350 women to stem, cap and sort berries. (Capping is done in the plant because of the great hauling distances from the field.)

Certain plants are changing in this regard, and are adopting improved han-

dling methods.

The outlook for further expansion in the Mexican strawberry situation is not very promising if current price levels prevail.

Most processors say that prices between 16 and 17 cents a lb F.O.B. Laredo, Texas, are not profitable, and would result in a shift from berries to other crops. END

Helps glamorize ground meats

Line of seasonings for use in portion-control meats helps convert ground meats into specialties such as chuck wagon, pizza, pepper and western steaks.

Seasonings and formulas for using them are now being made available following five years of market testing in products where sales figures were available to manufacturer.

Testing method has enabled manufacturer to pinpoint which seasonings are fully acceptable to the public.

Supplier: Freezer Laboratories, Inc., Dept. SG, 3755 S. Racine Avenue, Chicago 9, Illinois.

7776 on Reader Service Slip.

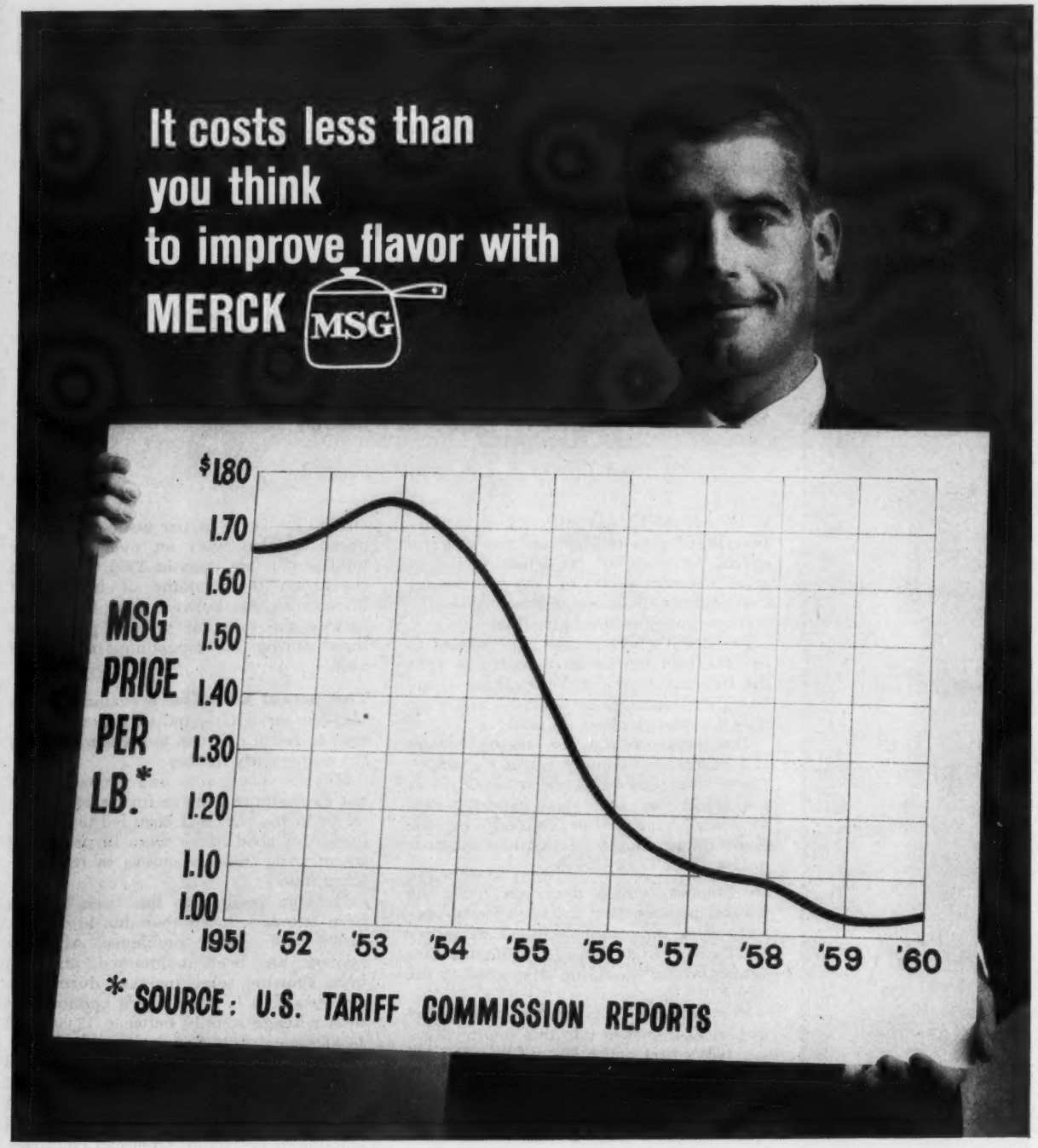
Algae product for yellower egg yolks

A-Zanth, when incorporated in feeds manufactured for egg and broiler producers gives poultry and egg yolks that rich, golden color which poultry processors, egg breakers, noodle makers, and the consumers seek.

It is a natural fermentation product of a recently isolated strain of algae. According to the manufacturer it has been proven a perfectly safe and wholesome pigmentation agent with a stabilized and guaranteed xanthophyll (the chemical responsible for pigmentation) potency.

Complete information on A-Zanth is obtainable from Grain Processing Corporation, Muscatine, Iowa.

7498 on Reader Service Slip.



Has the cost of using MSG stopped you from improving the flavor of your products? Better take a new look at MSG economics as shown in our graph. While most food processing costs have sharply increased during the past decade, MSG has steadily decreased and leveled off.

At today's prices, your product can benefit from the addition of Merck MSG for only 1-2 mils per pound of finished product—little enough compared to the decade's high when MSG cost nearly twice as much.

When you decide to re-evaluate MSG for your product be sure to call Merck. Specialists in the Merck Food Laboratories are ready and eager to help you get the most from MSG. And a recent 100% increase in production capacity puts Merck in an excellent position to meet all your MSG requirements.

MERCK CHEMICAL DIVISION
MERCK & CO., INC. · RAHWAY, NEW JERSEY

7497 on Reader Service Slip.

20 vacuum-dried ingredients for convenience foods

Vacuum dried fruits and vegetables can be used as ingredients in a series of convenience food products such as fruit cakes, desserts, muffins, cereals, pies, and dry mix gelatin desserts.

Products available in flake form are dates, prunes, peaches, cherries, apricots, apples, and raisins. Many of these same fruits are also available in granular and powder form.

In addition there are cherry halves, green beans, pea flour, celery, precooked red beans, and precooked navy beans.

Primary advantages are low moisture (2½%), 1/10th the weight of raw foods, long shelf life, and uniformity.

Because the foods are processed without the application of high heat, they retain much of their original flavor. Also they are rapidly rehydrated upon the addition of water and the resultant food has a body and texture that closely resembles the original product.

The manufacturer offers technical assistance in evaluation of proven applications or in the development of new applications.

A 4-page brochure with full color reproduction of the products offered is available from Vacu-Dry Company.

7499 on Reader Service Slip.

Miles has a way with FOOD

TAKAMINE ENZYMES

...industry's biggest enzyme family made to fit your product's good taste

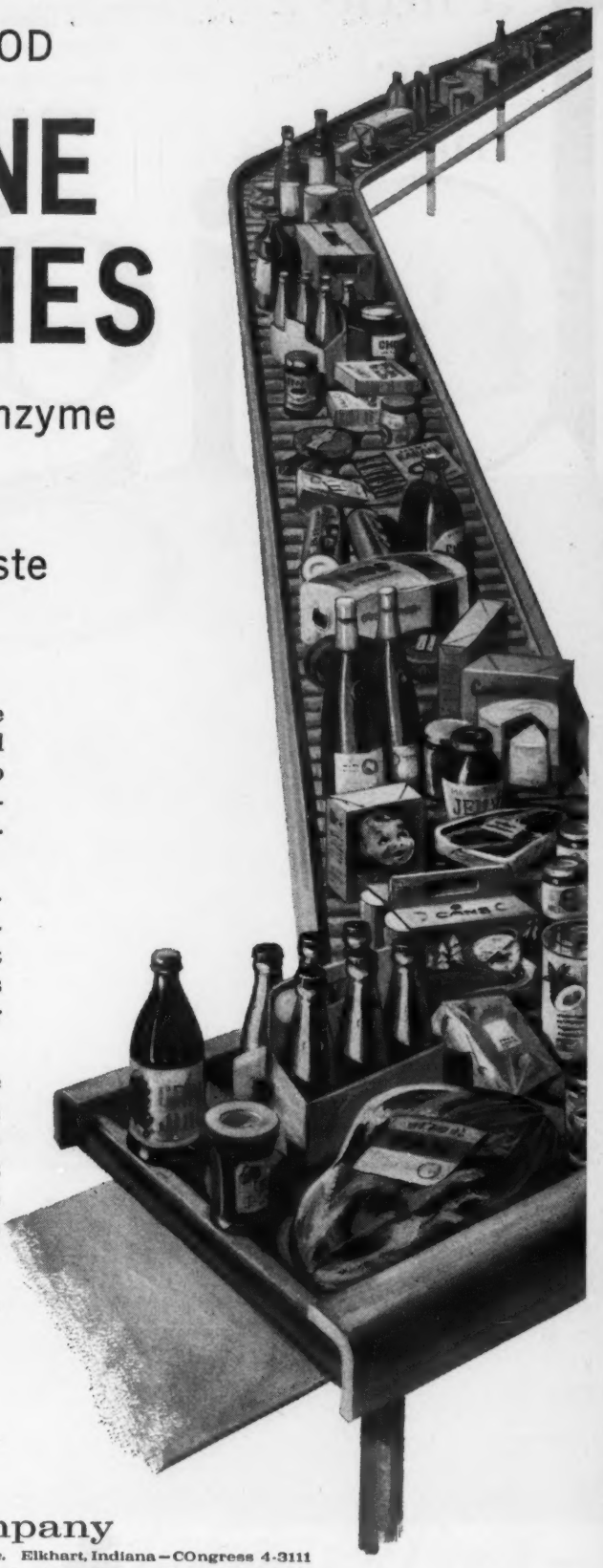
Exactly what does that mean to you?

A great deal. Producing the biggest enzyme family means that Takamine can recommend the precise *enzymatic activity* best suited to your particular job, whether it's starch conversion, proteolysis, removal of pectins, glucose or oxygen removal, or others.

Refined manufacturing techniques have resulted from this broad experience with enzymes. This means we can achieve the exact enzymatic activity required for specific jobs . . . *and maintain its uniformity*, batch after batch after batch.

So if you now use enzymes to enhance flavor, guard color and stability, lengthen shelf life or speed processing . . . or if you suspect you could use enzymes profitably . . . let us recommend a Takamine enzyme for the job. We don't believe you can find enzymes more precisely matched to your needs anywhere.

T-2-1



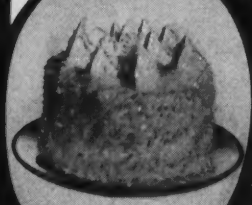
MILES Chemical Company

TAKAMINE®

Division of Miles Laboratories, Inc. Elkhart, Indiana—COngress 4-3111
Clifton, N. J. — PRescott 9-4776 • New York, N. Y. — MUrray Hill 2-7970

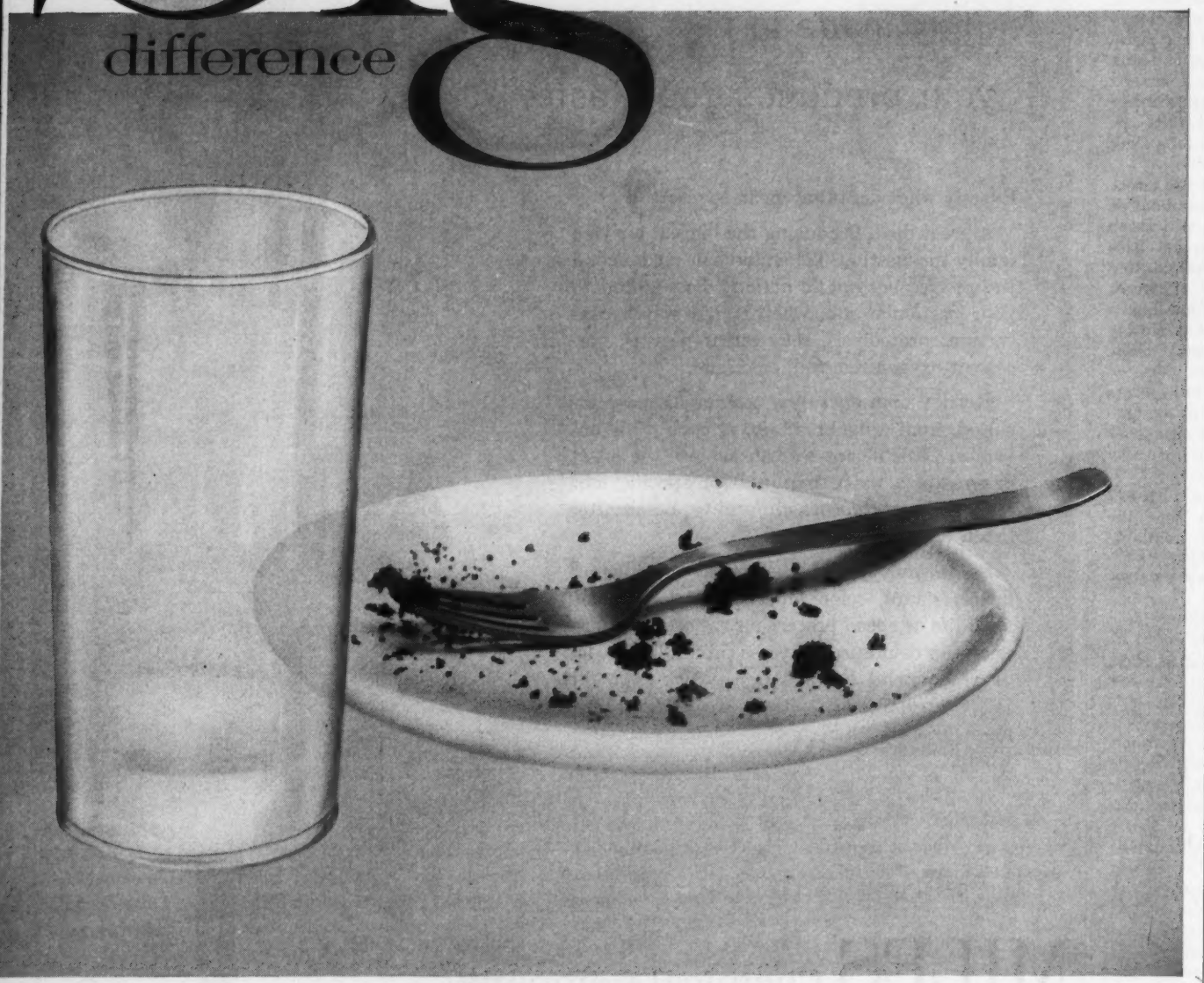
7500 on Reader Service Slip.

a little cmc makes a big difference



It looked tasty in the bakery—it lived up to its looks at home. That's why it disappeared fast. And a little Hercules Cellulose Gum, purified CMC, made the big difference. But even if the cake had lasted longer, the icing—and the cake itself—would have remained fresh and tasty, because they both contain a little cellulose gum. It makes a big difference in icings. It prevents "weeping" and also retards crystal growth, keeping the icing surface smooth and velvety. For real "frosting on the cake," see the difference a little cellulose gum can make.

For complete details write to Hercules.



Hercules® Cellulose Gum

VC61-3

HERCULES POWDER COMPANY
INCORPORATED
Hercules Tower, 910 Market Street, Wilmington 99, Delaware

7501 on Reader Service Slip.

plants, companies, personalities

United Fruit Company

Boston, has created a new position of director of quality control, and appointed to it

Dr. Howard L. Stier, recently director of the Division of Statistics of National Canners Assn.

Continental Baking Company

Rye, N.Y., has appointed Dr. Robert R. Baldwin, former laboratory director of General Foods, as re-

search supervisor for Continental Baking's research laboratories. His major field will be the analytical chemistry of foods.

Seymour Foods, Inc.

Topeka, Kans., has named Dr. O. J. Kahlenberg director of research. An outstanding authority on eggs and egg products, he had been professor of poultry husbandry at University of Missouri.

Archibald & Kendall Inc.

New York, announces merger with another long-established spice importing and grinding firm — Kearns & Smith Spice Co., Chicago.

Fuchs Baking Co.

South Miami, Fla., bakers of Holsum bread and cake, has elected George M. Wilson chairman of the board.

Better refrigerated biscuits with new pyrophosphates

Biscuits with superior volume and first-class symmetry, crust color and taste — even after eight weeks of refrigerated dough storage — were produced with FMC refrigerator-grade sodium acid pyrophosphates.

In extensive experiments conducted by an independent technology laboratory (Food Technology Inc.), biscuit doughs were mixed, rolled, cut, packed, sealed in standard tubes and refrigerated (for from two to eight weeks) under controlled conditions.

The biscuits then were baked by standardized methods, and studies were made of the volume, symmetry, crust color and taste of the finished products to determine storage life of the biscuits under refrigeration.

For the tests, FMC sodium acid pyrophosphates were compared with good grades of competitive material.

Supplier: FMC Corp., Mineral Products Division, 161 E. 42nd St., New York 17, N.Y.

7502 on Reader Service Slip.

Soy protein is whipping agent in confections

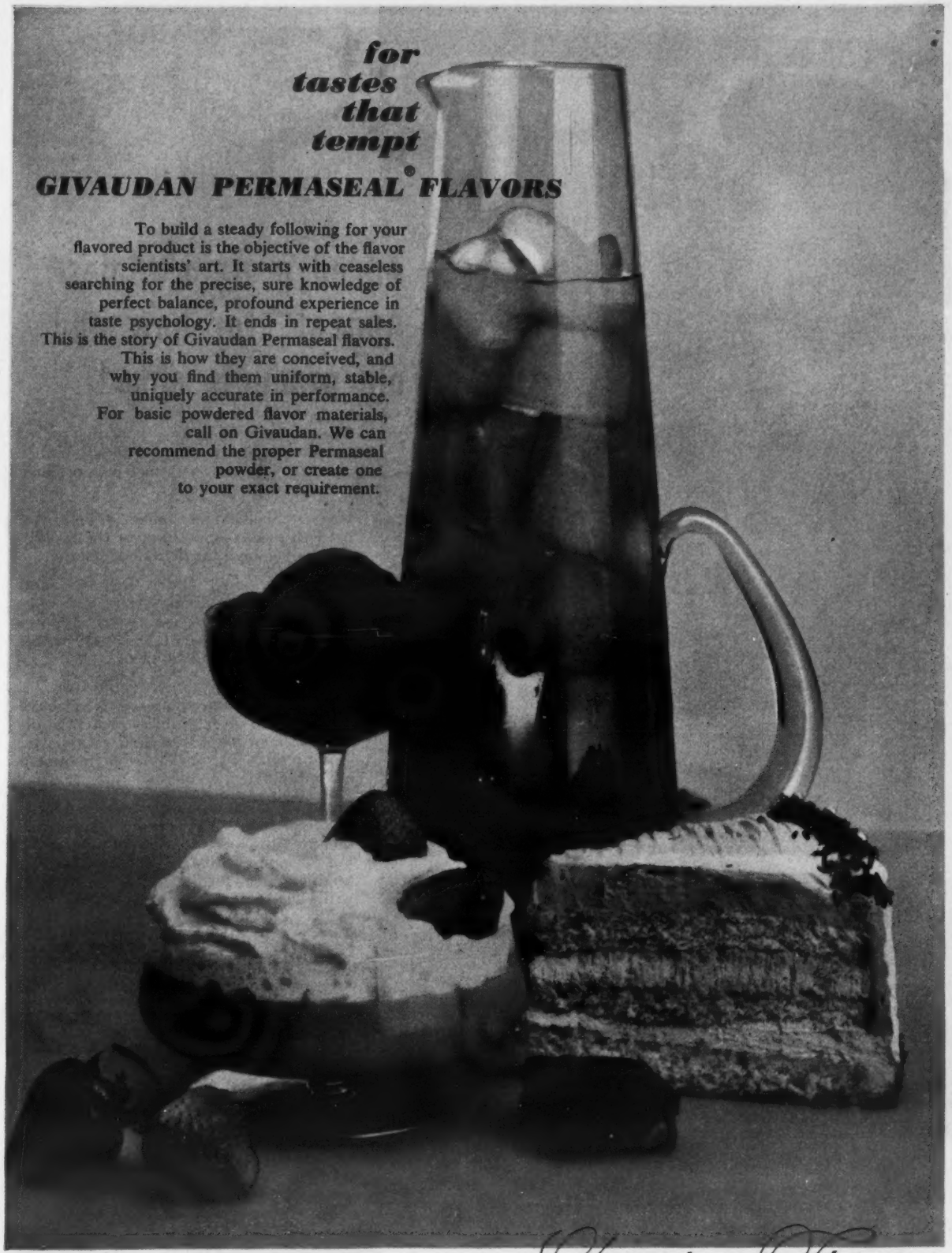
Two refined soybean protein products, called G-400V and G-400H are used as whipping agents in aeriated confectionery products.

G-400V is designed for use in vertical and continuous beaters where beating of syrups seldom exceeds 5 to 8 minutes.

G-400H is designed for use in slower beating machines such as horizontal type marshmallow beaters where it is normal to beat 15 to 20 minutes.

Both products may be added to very hot syrups without difficulty and they whip well regardless of syrup temperature. With the protein, syrups will not beat-down or lose volume upon prolonged beating. In most cases extra long whipping is beneficial to texture.

A 4-page technical bulletin


for
tastes
that
tempt
GIVAUDAN PERMASEAL® FLAVORS
To build a steady following for your flavored product is the objective of the flavor scientists' art. It starts with ceaseless searching for the precise, sure knowledge of perfect balance, profound experience in taste psychology. It ends in repeat sales. This is the story of Givaudan Permaseal flavors. This is how they are conceived, and why you find them uniform, stable, uniquely accurate in performance. For basic powdered flavor materials, call on Givaudan. We can recommend the proper Permaseal powder, or create one to your exact requirement.
321 West 44th St., New York 36, N. Y.
Givaudan Flavors Inc.

7503 on Reader Service Slip.

Added protein "Sales-Appeal" for new and old products alike!

The highly competitive food market of the future will very likely demand a higher nutrient value in every food you produce . . . or plan to produce.

Here at Sheffield, we offer the help you need to meet competition in the rapidly developing high-nutrient food market.

At the National Dairy Research and Development Division we're continually perfecting new high-quality protein supplements like SHEFTENES, which can be added to a broad range of foods.

SHEFTENES are milk derivatives . . . colorless, tasteless, odorless . . . and have proved themselves an ideal protein additive, both in many new and established food products. Also, they offer functional advantages as ingredients.

Perhaps our research experience and facilities can help your product compete in the protein-power market of tomorrow. For a complete list of Sheffield protein products, or for technical assistance, write Dept. FP-91:

SHEFFIELD CHEMICAL
Norwich, N. Y.
A DIVISION OF NATIONAL DAIRY PRODUCTS CORPORATION

Western U.S. distribution through

VAN WATERS & ROGERS INC.
Seattle, Spokane, Portland, Dallas, Houston

BRAUN-KNECHT-HEIMANN CO.
San Francisco, Salt Lake City, Denver

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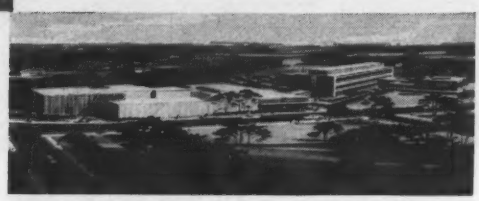
A FEW OF SHEFFIELD'S PROTEIN SUPPLEMENTS

SHEFTENE Calcium Caseinate
SHEFTENE Postassium Caseinate
SHEFTENE Sodium Caseinate
SHEFTENE Ammonium Caseinate
SHEFTENE Edible Casein
SHEFTENE Lactalbumin
SHEFTENE 60
Calcium Lactate Powder (Edible and Food Processing Grade)
Lactose (Edible and U.S.P.)



NATIONAL DAIRY RESEARCH AND DEVELOPMENT DIVISION, GLENVIEW, ILLINOIS

7504 on Reader Service Slip.

about the proteins includes the formulae and manufacturing procedure for frappe in vertical beater, frappe in horizontal beater, short nougat, and chewy nougat with honey.

Supplier: Gunther Products Inc., Galesburg, Illinois.

7505 on Reader Service Slip.

Offers carotene in four forms

Four forms in which carotene is offered — carotene in oil, crystalline carotene extract, crystalline carotene and special carotene — are described in 16 pp Bulletin 16, released by General Biochemicals, Inc.

Literature, GBI Carotene, is divided into ten parts. In addition to describing forms of carotene made, bulletin lists many uses and tabulates daily requirements of Vitamin A.

Bulletin opens with an introduction which is followed by a short history of carotene. It contains discussions on carotene chemistry, biological significance of carotene, and clinical symptoms of dietary deficiency. Assay methods for carotene also are included.

7506 on Reader Service Slip.

Tells best pectin level for pumping, spreading, baking

Bakers interested in making fruit pastry fillings will find good practical recommendations concerning correct pectin levels to use for pumping, spreading and baking in two-pg Bakery Engineers Information Service Bulletin No. 29.

The bulletin's six replies to an ASBE-member's question regarding ideal pectin level as well as possible effect of the pastry filling's fruit content, all are based on practical knowledge, and range in length from two sentences to a full pg.

To secure a copy, request from Bernard Bergholz, Jr., Secretary, American Society of Bakery Engineers, Rm. 1354, LaSalle-Wacker Bldg., 121 W. Wacker Dr., Chicago 1, Ill., enclosing a 4-cent stamped, addressed long envelope.

Now! TART gelled sauces!

Make them with the only pectin that gells without sugar

Imagine—a tangy gelled fruit sauce! Many new, and saleable gelled food products are made possible by EXCHANGE LOW METHOXYL PECTIN—the *only* pectin that forms a true gel without the need for sugar.

With L. M. Pectin you can produce a full line of gelled foods of any degree of sweetness—even sugar-free for diabetics and low-calorie dieters. Use it for aspics, relishes, low-calorie jams, fruit jells and desserts. They'll stay firm at room temperature, yet be tender, elastic and sparkingly brilliant.

Get full information—including technical data and formulas. Call your Sunkist man or mail the coupon today.

Sunkist Growers

Products Sales Dept., 720 E. Sunkist St., Ontario, Calif.

Gentlemen: Please send data on use of Exchange Low Methoxyl Pectin in ( ) low-calorie jams ( ) aspics ( ) fruit jells ( ) relishes ( ) desserts ( ) sauces ( ) other.

NAME _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

Exchange

Up to 60 analyses per hr without attendant

- **Automatically determine sugar — salt — protein content**
- **Flexible system can be adapted to many analytical problems**

FP STAFF

The H. J. Heinz Co. *Research and Quality Control division, laboratory checks regular production automatically with Auto Analyzer for salt and sugar content to consistently meet production standards. Company plans to expand uniformity tests as soon as methodology for other analyses has been perfected*

AUTOMATION of analytical procedures for determining sugar and salt content is well under way at H. J. Heinz laboratories, see photo upper right.

Automatic analyzer used makes all determinations on a comparative or ratio basis; that is, it records the level of concentration of a given component in the test solution against a known concentration of that component in a standard solution.

Analyses are fast and accurate. Analyzer can run as many as 20, 40 or 60 tests an hour without presence of an attendant, and determinations as low as few parts per million can be made with precision of ± 1 per cent. (A more recent model will make determinations down to parts per billion with same precision.)

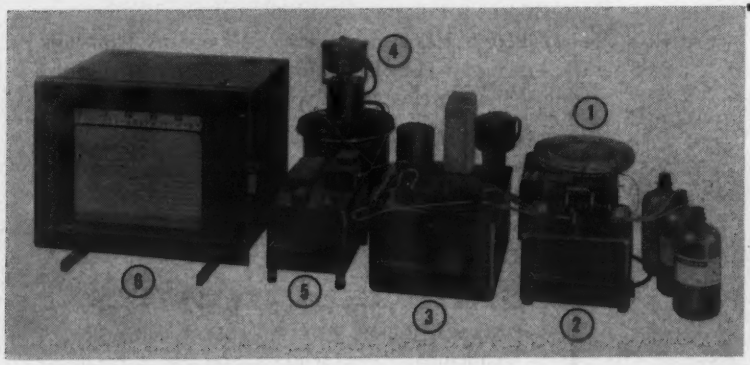
System is self-cleaning so that each sample remains uncontaminated.

Instrument, termed Auto-Analyzer, made by Technicon Controls, Inc., of Chauncy, N.Y., integrates into one continuous flow system sample and reagent measuring, mixing, purifying and comparing. Readings are graphically presented on strip-chart recorder.

Versatility of analyzer is inherent in design. Separate units or modules automatically duplicate each step usually performed by conventional, manual techniques in colorimetric determinations, see

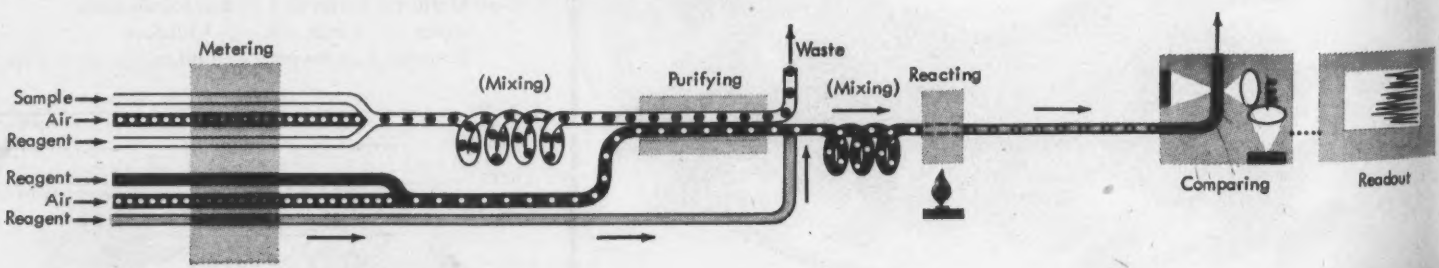
APPARATUS for continuous nitrogen analysis by Kjeldahl process has six modules: (right to left) sampler (1); behind which is first proportioning pump (2); automatic digester (3); second proportioning pump (4); colorimeter (5) and recorder (6).

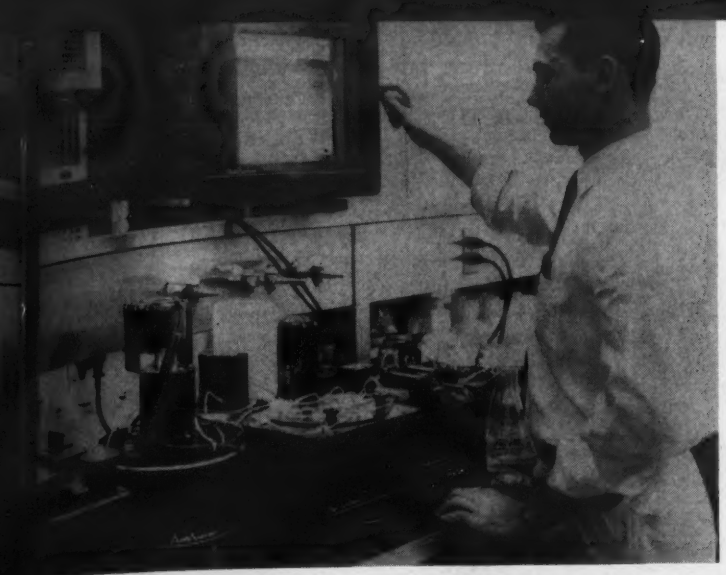
First proportioning pump, continuously or intermittently supplies samples and digestion mixtures into digester vessel. After digestion, an aliquot of the highly concentrated solution is removed, diluted, cooled and aspirated through balance of system by second pump. It is mixed with additional reagents, after which it flows through time delay coil (five-min delay) and then into colorimeter

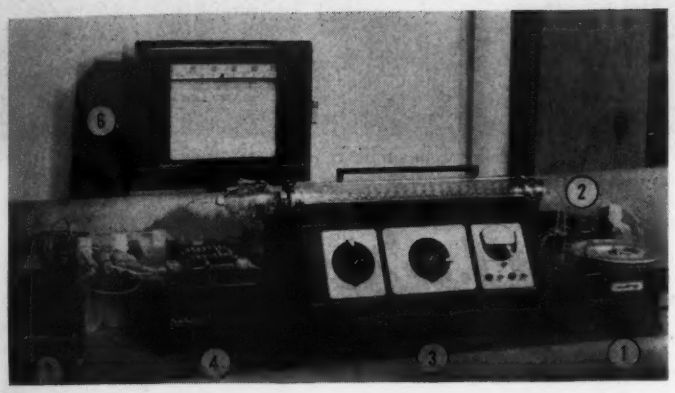


CONTINUOUS ANALYSIS for salt and sugar is performed by six modules: (right to left in photo) sampler (1) behind proportioning pump (2), dialyzer (3), heating bath (4) behind colorimeter (5) and recorder (6). Analysis consists of five steps, left to right in diagram below. (A mixing coil, designated parenthetically and for the purpose of this explanation not counted as a separate step, is at each point in system where two different liquids meet to obtain homogenous mixtures.)

First module, or sampler has plastic sample plate with peripheral depressions in which unknowns are placed manually. As plate slowly turns at about 1 rph, samples are drawn off for a timed period by a hinged pick-up tube that falls into each depression. During interval in which pick-up tube rides over space between sample cups, air is drawn in to keep sample streams separated.







Proportioning pump, (second module) is a valveless hose pump that "meters" or pumps by moving rollers across fluid-retaining tubes. Parallel rollers depress tubes as they continuously travel across them, "squeezing" the fluids along. Pump has up to eight flexible tubes through which all fluids (liquids and separating gas) necessary for analysis are simultaneously introduced in exact proportion. Diameter of tubes determines flow rate which is held constant. Rollers are attached to, and propelled by two loops of chain.

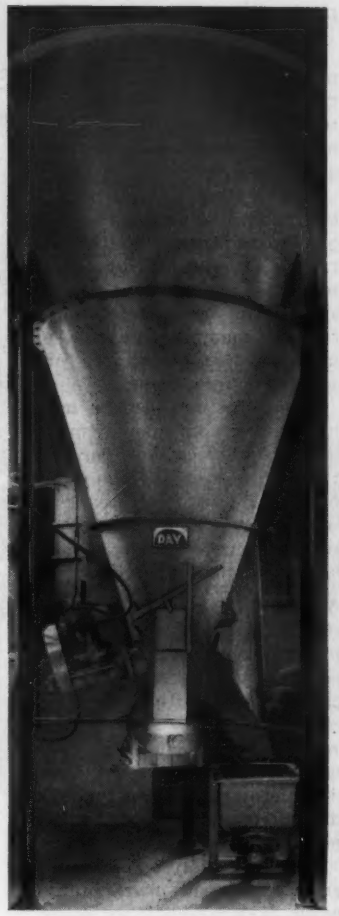
Semi-permeable membrane in dialyzer (third module) attains results equivalent to manual precipitation, filtration or purification. Cellophane membrane is sandwiched between two plates clamped together in steel frame. Plates have grooved pathways, on one side of membrane for sample and on other side for reagents. Grooves are mirror images of each other and are 87-in long.

Since both time and area of dialysis exposure are exactly the same for both standards and unknown, ratio of total material dialized will vary only as its concentration. Thus it is not necessary to bring dialysis to full completion.

Reagent streams with diffusable constituents that have passed through membrane flow from dialyzer to heating bath, fourth module. Each increment of known and unknown sample receives exactly the same time-temperature exposure for color development, enzyme reaction etc.

Fifth module is colorimeter. It has a single light source that is optically divided into two beams, each of which scans a separate photocell. One cell is used for measuring; the other for standardization. Relative outputs of cells are balanced and recorded by ratio - recording potentiometer, sixth module

Now get
EXTREME HIGH ACCURACY MIXING IN SHORT TIME
with the revolutionary
DAY NAUTA MIXER*



UNIQUE 3-WAY MIXING ACTION of the DAY Nauta Mixer produces a greater degree of mixing accuracy in less time than any other known type of mixing equipment! Quick, uniform mixing is accomplished by a revolving screw that orbits around the wall of the conical container. A thorough dispersion is obtained in ½ to ⅓ the time required by most conventional mixers.

YOU'LL BENEFIT FROM THESE EQUALLY IMPORTANT ADVANTAGES:

- **Starts under full load.**
- **Also handles small batches.**
- **Low horsepower requirements.**
- **Gentle action — no product damage.**
- **Uniform distribution regardless of specific gravity of materials.**
- **No stuffing boxes.**
- **Lump breaker device.**
- **Safe and sanitary design — cleans easily.**
- **Low heat generation.**
- **Deaerates the batch.**
- **No build-up on tank.**
- **Uses minimum floor space.**

EASY ADDITION OF LIQUIDS — "Microjet" device permits addition of small amounts of liquids to large amounts of dry materials with complete homogeneity and without lump formation.

A SIZE TO FIT YOUR NEEDS — available in laboratory models and production sizes up to 925 gallons.

TEST THE DAY NAUTA MIXER with your batch ingredients in our laboratory. There is no obligation.

GET FULL DETAILS TODAY! SEND FOR NEW BULLETIN!

**Mfg. under license from N.V. Nautamix, Haarlem, Holland. Patented U.S.A.*

DAY

The **J. H. DAY Co.**
Division of The Cleveland Automatic Machine Company
QUALITY MIXING, BLENDING, MILLING AND SIFTING EQUIPMENT SINCE 1887
4940 BEECH STREET CINCINNATI 12, OHIO

7675 on Reader Service Slip.

photo caption page 78 for details. Modules are flexibly interconnected and thus can be arranged to suit analytical sequence as necessary.

Since other measuring or test equipment, such as flame photometer or potentiometer can be substituted for color-sensing module, instrument system can be used for many routine manual analyses, as for example determining pH, sodium and potassium.

Apparatus can also be used in plant for continuously monitoring and recording concentration levels of one or a number of fluids. By changing readout module to controller-recorder, processes may also be automatically controlled.

Automatic nitrogen analyses by Kjeldahl technique in protein determinations is now possible with "adaptations." A continuous-digestion unit that oxidizes samples is integrated with the AutoAnalyzer. System can be used for both reductive and oxidative types of digestion, in laboratory and in plant.

Nitrogen-analysis apparatus greatly increases work output while saving laboratory space. Completely automatic in operation, one technician supervising two machines is stated to produce 320 analyses per working day. Precision of results is ± 2 per cent to ± 3 per cent.

Complete system requires but 3 ft by 6 ft of bench space.

System is self-cleaning, and digestion reaction can be observed as it occurs in helically grooved pyrex tube of digester unit.

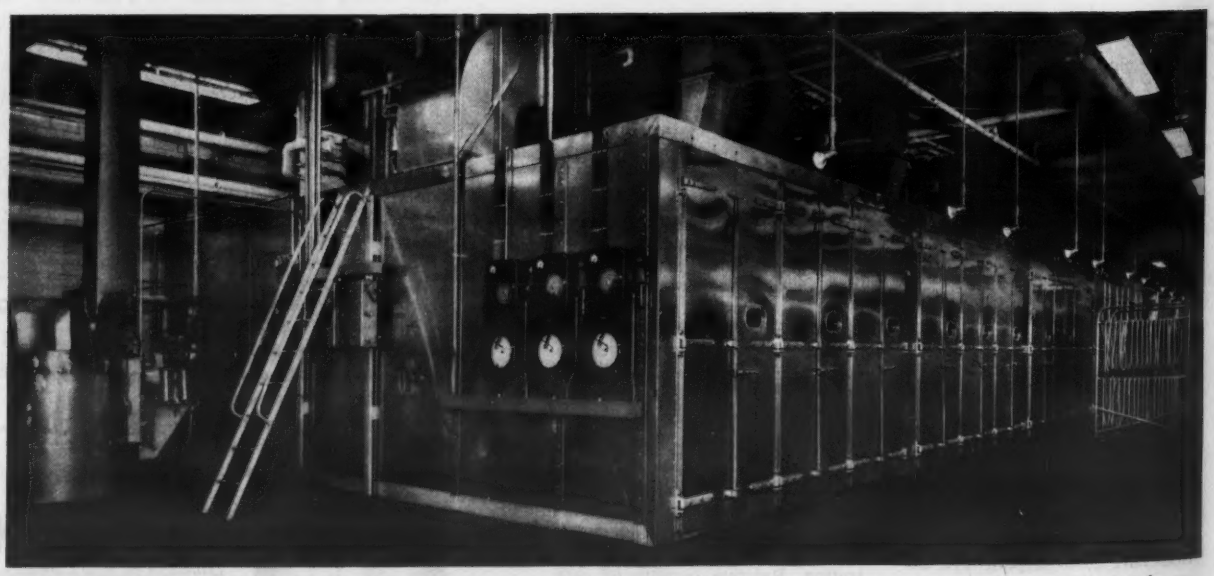
This pyrex tube, 23 in. long and 1.7 in. in diam, is rotated by motor so material introduced at one end is conveyed to exit at other end. Speed of rotation is adjustable to control duration of digestion. Generally, helix is set to rotate at about 6 rpm.

Sample mixtures are subject to two heatings as they travel through tube, each temperature zone being individually controlled. While maximum temperature settings for both zones is 700 C, temperature is usually held to 450 C in first zone and 350 C in second zone.

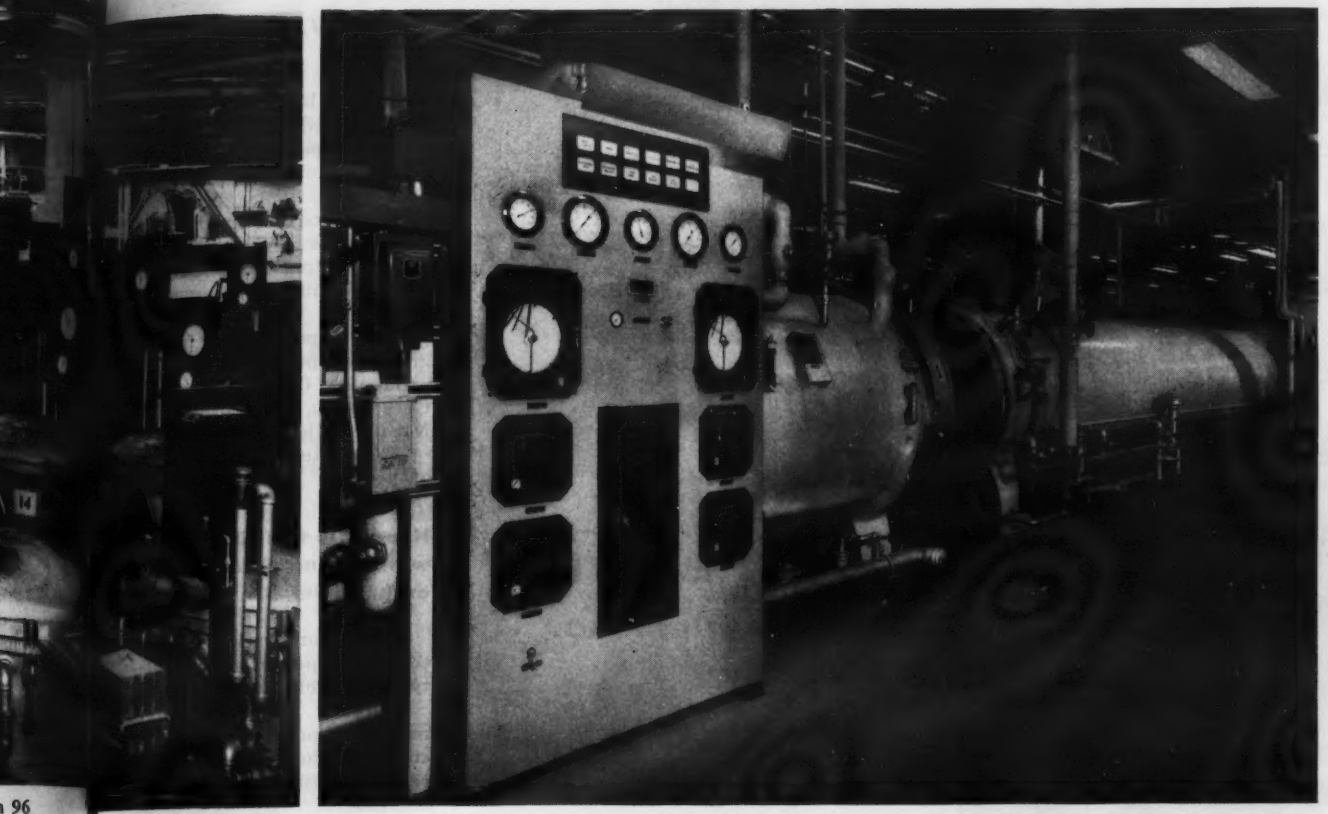
7508 on Reader Service Slip.

At Libby's Morgan Park plant, Taylor automatic Steam Cook Control Systems maintain exact processing temperatures in 96 retorts; eliminate the possibility of over and under-sterilization; provide a permanent record of cooking temperatures.

WHY *Libby's* CHOSE



Push-button automatic Smokehouse Control System regulates both wet and dry bulb temperatures within these 6 Julian smokehouses. Time schedule control brings temperatures up, maintains desired number of hold periods and automatically shuts off.



One of three Taylor-controlled Food Machinery and Chemical Corp's, Continuous Sterilmatic Pressure Cooker Cooler lines. The system maintains precise temperature control, including safety interlocks to insure adequate sterilization at all times, and temperature control during cooling.

Taylor's CONTROL SYSTEMS

For many years Libby, McNeill & Libby have relied on Taylor instrumentation for dependable quality control. In their new plant at Morgan Park, Chicago, processing operations have been automated for maximum efficiency and highest possible quality . . . hence the impressive array of Taylor systems shown in these pictures.

Among the top quality products under Taylor control at Morgan Park are Libby's Beef Stew, Spaghetti and Meat Balls, Vienna Sausage and Deep-Brown Beans. Libby's report all systems working to their complete satisfaction. Operator attention time has been cut to the minimum; spoilage is negligible; quality control is excellent. When you're ready to modernize or expand, why not draw on Taylor's years of experience in serving the food processing industries. Your Taylor Field Engineer is well qualified to advise you. Or, if you prefer, write for *Catalog 500.* Taylor Instrument Companies, Rochester, N. Y., and Toronto, Ontario.

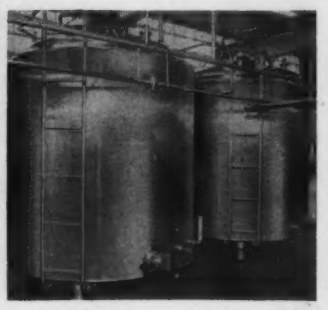
Taylor Instruments **MEAN ACCURACY FIRST**

7509 on Reader Service Slip.

300 to 2000 gal buttermilk tanks

Thorough blending and uniform product texture throughout run are provided by line of buttermilk tanks. Tanks are equipped with two-speed agitators that have wide-sweep propelling blades and close-sweep vertical blades.

CP Series 90 Multi-Process tanks are designed for heating



by steam or high-velocity hot water, and cooling by city, well or refrigerated water. Temperatures may be varied from 40 F to 200 F.

Tanks are constructed to withstand vacuum as well as positive internal pressure so that they may be emptied by air rather than pumping.

Supplier: The Creamery Package Mfg. Company, 1243 W. Washington Blvd., Chicago 7, Illinois.

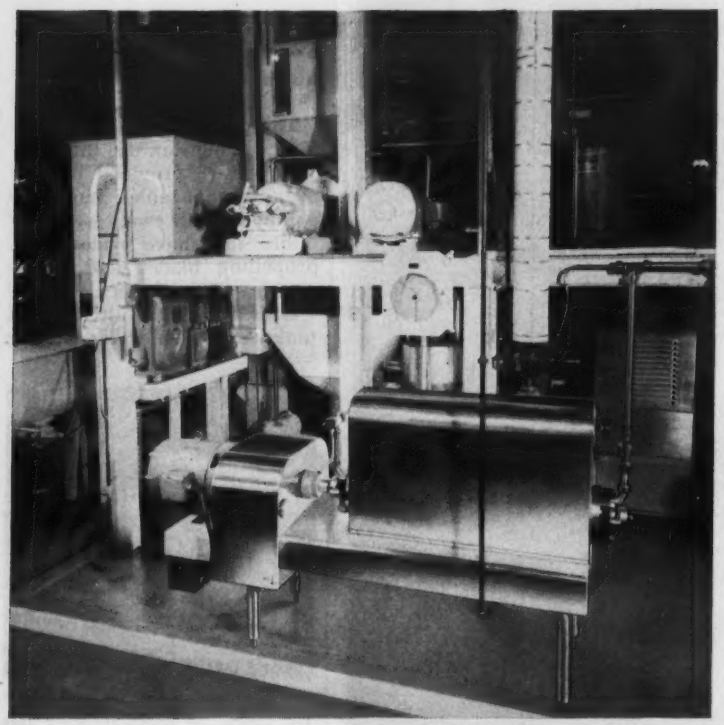
7510 on Reader Service Slip.

Inspects, controls on machine or conveyor

Uses-Features: When used with inspection system on machines, inspection stations feed "pass" or "fail" signals on products passing by to corresponding stations on electric memory wheel. Signals are stored in wheel and when products reach end of machine, they are rejected or sorted according to stored information.

When used with conveyor system, memory wheel can detect and remember information about variations of single product. It can also differentiate between and remember variety of products. Products

ANOTHER FOOD PROCESSOR PROTECTS QUALITY AND PROFITS WITH *Creamery Package*® EQUIPMENT



CP® EQUIPMENT

processes...

pumps...

protects...

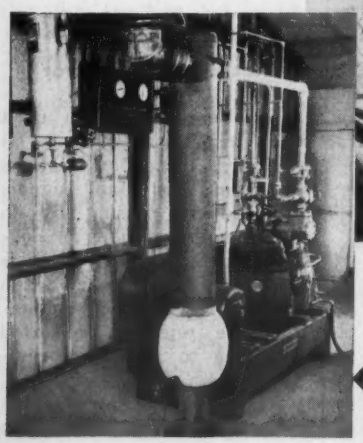
PEANUT BUTTER

at WM. BARNES, INC.
Minneapolis

Swept Surface CHILLER

Cold-pack processing of peanut butter at Wm. Barnes, Inc. centers around this compact CP Swept-Surface® Peanut Butter Chiller. Exclusive CP Dasher Blades continuously sweep peanut butter away from cooling surfaces to drop temperature from 180°F to 100°F at 2500-2800 lb./hr. CP Rotary Pumps move peanut butter to chiller.

Recognized quality of "Billy Boy" brand peanut butter is checked throughout processing cycle.



This space-saving CP type "K" four-cylinder 3½ x 3½ Ammonia Compressor does double duty, serves the Swept-Surface® Chiller and a frozen fruit storage room.

This compact, efficient processing facility co-ordinates a CP Swept-Surface® Chiller, CP Sanitary Stainless Rotary Pumps, and a CP Ammonia Compressor to meet exact processing needs.

CP Engineering can do the same for you. Modern, cost-cutting CP processing, handling and storage equipment can be combined into a smoothly operating processing center—automated, if desired—to fit almost *any* food plant requirement. Your local CP Representative is available for consultation; write us to have him contact you now.

THE *Creamery Package*® MFG. COMPANY

• Subsidiary of St. Regis Paper Company
Dept. FP-961, 1243 W. Washington Blvd., Chicago 7, Ill.
23 Factory Branches Coast to Coast

CREAMERY PACKAGE MFG. CO. OF CANADA, LTD.
Toronto 2B, Ontario

MFRS. OF FOOD PROCESSING, REFRIGERATION AND MATERIALS HANDLING EQUIPMENT

CANNED AND FROZEN FOODS • BEVERAGE • BREWING • CHEMICAL • DAIRY • DRUG • FARM

7511 on Reader Service Slip.

can then be routed, sorted and counted automatically.

Description: Memory wheel is part of automatic inspection and control system that will also produce permanent records for variety of purposes. Visual outputs can be included for instant observation.

Memory wheel can be readily expanded to handle any size operation.

Supplier: Control Equipment Corporation, 19 Kearny Road, Needham Heights 94, Mass.

7512 on Reader Service Slip.

Handle up to 8000 lb/hr with moving-apron dryer-cooler

Uses: For drying and/or cooling expanded or pellet-type products.

Features: Horizontal dryers are mass produced to lower costs; are designed with automatic operating and safety controls.

Dryers will reduce moisture content from 10 to 12 points; that is, they will lower moisture from 24 to 12 per cent or from 22 to 10 per cent.

Drying costs for fuel, electricity etc, appear to be between one and one and one-half cents per 100 lb of expanded product. For any type of pellet product, cooling costs are a fraction of a cent.

Self-contained dryers can be installed inside or outside plants. They can be equipped to operate on LP or natural gas, or fuel oil

Description: Arid-Aire Dryers are made from standard components and are available in various capacities up to 8000 lb of product per hr. Other models now being planned will handle from 16,000 to 18,000 lb/hr and remove from 8 to 12 points of moisture.

In operation, product to be dried and/or cooled is slowly

conveyed on horizontal moving apron. Warm dry air is drawn through product to remove moisture at pre-determined rate.

For cooling only, unit is set so that fan moves large quantities of cool air over moving product.

Supplier: Daycom, Inc., 157 N. Bryant Ave., Minneapolis 3, Minn.

7513 on Reader Service Slip.

Accurate, reliable photo-colorimeter

Uses: For determining food colors and other control work.

Features: Photo-colorimeter is simple in design and operation for trouble-free performance.

Low-cost instrument is accurate; has repeatability of 0.2 to 0.3 of one per cent. It has precision-ground cuvette and

Photo-colorimeter has but one control knob for simple operation; has mirror-backed scale in large meter for easy reading

can test samples as small as 1½ ml.

Operation: In Model M Photometer, specimen is placed in path of light transmitted to a photo cell. Since water absorbs less light as compared to colored matter, current generated in cell is smaller for colored matter.

For measurement, photoelectric current is transmitted to highly sensitive meter which reads both percent transmittance and optical density.

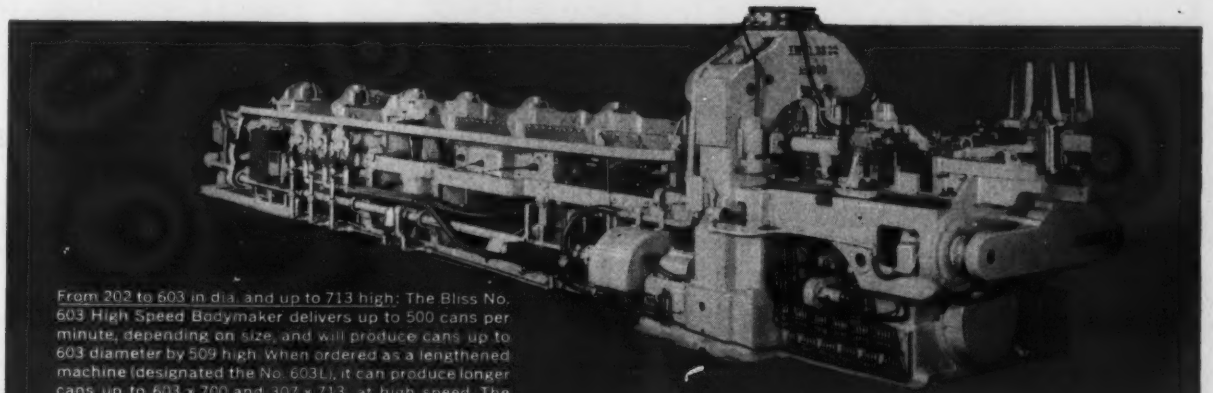
Supplier: E. Leitz, Inc., 468 Park Avenue South, New York 16, N.Y.

7514 on Reader Service Slip.

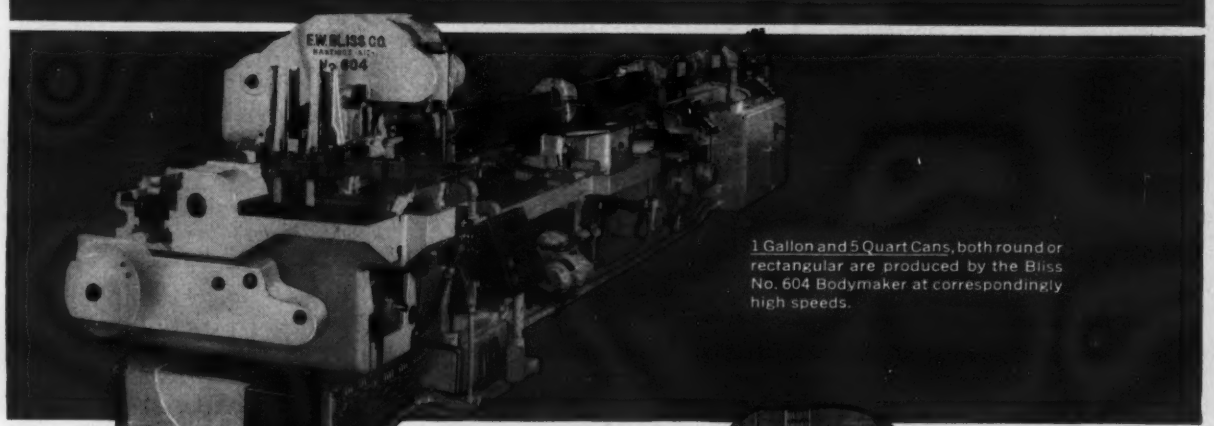
BODYMAKERS BY BLISS

for every body size and type

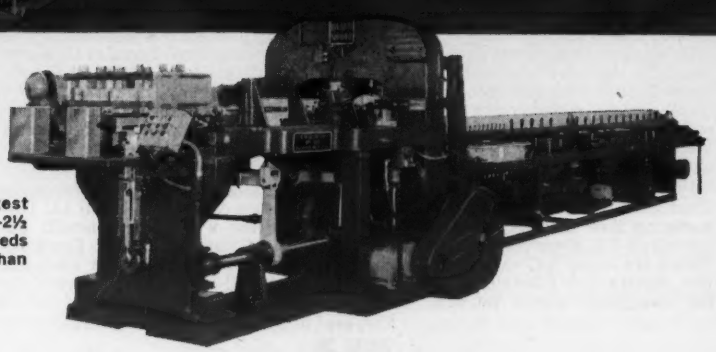
These Bliss bodymakers cover the entire range of can sizes and shapes, from the smallest standard sanitary can, up to 2½ gallon tins. For complete information about any of them, write us today.



From 202 to 603 in dia. and up to 713 high: The Bliss No. 603 High Speed Bodymaker delivers up to 500 cans per minute, depending on size, and will produce cans up to 603 diameter by 509 high. When ordered as a lengthened machine (designated the No. 603L), it can produce longer cans up to 603 x 700 and 307 x 713, at high speed. The 603L Bodymaker has an operating speed range of 175 to 300 per minute.



1 Gallon and 5 Quart Cans, both round or rectangular are produced by the Bliss No. 604 Bodymaker at correspondingly high speeds.



The New No. 014 Bodymaker: The largest in the Bliss line the No. 014 produces 2-to-2½ gallon rectangular gasoline cans at speeds up to 60 per minute, 50-to-60% faster than any existing equipment.

BLISS SINCE 1857 ®

BLISS is more than a name—it's a guarantee

E. W. BLISS COMPANY · Hastings, Michigan

Foreign Subsidiaries: E. W. Bliss (Canada) Ltd., E. W. Bliss (England) Ltd.
E. W. Bliss Co. (Paris) France, E. W. Bliss-Henschel G.M.B.H., Düsseldorf, West Germany

PRESSES • ROLLING MILLS • ROLLS • CONTAINER MACHINERY • CONTRACT MFG • PUBLIC SAFETY

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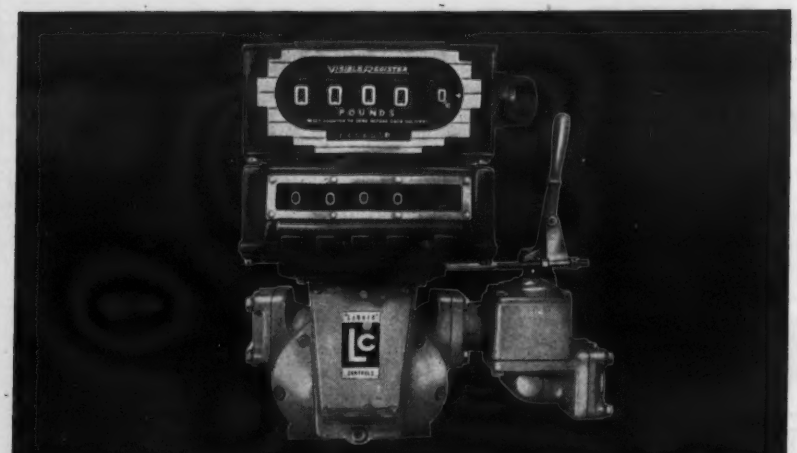

Here's Why LC is Fast Becoming

THE "STANDARD"

In Syrup Metering...

Only LC meters include these important features at no extra cost!

- **SINGLE POUND SETTINGS**—Enables metering exact quantity without guess-work. If your mix calls for 33 pounds, you deliver 33 pounds . . . not 30 or 35!
- **EFFORTLESS VALVE OPERATION**—Hydraulically balanced, two-stage closure valve opens easily against pressure. Prevents hydraulic hammer!
- **SIMPLIFIED, MAN-SIZE PRESET KEYS**—Large buttons set quantity desired. Columns set individually—or simultaneously — without disturbing other columns!
- **EASY READABILITY**—Large ½" high preset and ¾" high counter numbers are easy-to-read from a distance. Counter can be rotated in 45° increments without adjustment!
- **MICROMETER ADJUSTMENT**—Provides exact calibration of meter with ease and speed. Allows 5% change in adjustment with no gear change. Reads directly in percent, tenths of percent and hundredths of percent!
- **ONLY THREE MOVING PARTS**—Rotors or metering element can be removed without removing complete meter from line. Simplifies cleaning and assembly right on the job!
- **ALL-ALUMINUM CONSTRUCTION**—LC Meters are corrosion-resistant, non-toxic, odor-free . . . and are easy-to-heat, too!
- **FAST DELIVERY**—600 gpm to 1 gpm meters are available from stock . . . are shipped without delay!

Since 1957, user-purchases of LC Meters have more than doubled each year. We think we know why. It's because LC is setting the pace in positive displacement meters with new, patented ideas that meet the needs of industry. It's because LC is the fast-acting, trouble-free, super-accurate meter *you've always wanted!*

That's why we say whatever your metering flow rate requirements are, there's an LC Meter to fit your needs. There are many LC extras available, too. Extras like Electrical Interlocks for energizing pump motors, Heat Lamps to prevent condensation inside counters, Electrical Impulse Counters for actuating timers, Printers for imprinting delivery tickets, Swivel Adapters which allow counter rotation in any direction, and Rigid Counter Extensions to permit setting of meter and counter at different levels.

But why not see for yourself how really good meters can be? Call your LC Distributor for a "see-for-yourself, no-obligation" demonstration. Do it today! Or, write us direct for complete details on LC—the *new standard* of the metering industry!

"If you can pump it, LIQUID LC CONTROLS *we'll meter it!"*

LIQUID CONTROLS CORPORATION

Commonwealth Avenue • North Chicago, Illinois • Phone: DExter 6-8070

Representatives and Stocks in Principal Cities

Export: Ad. Auriema, Inc., N.Y.

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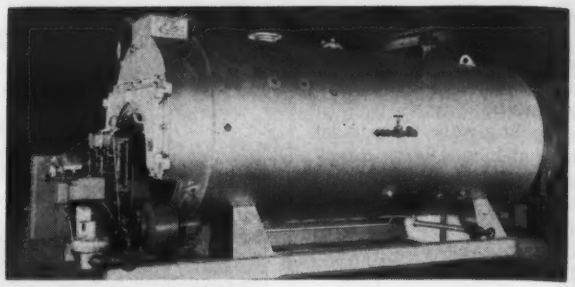
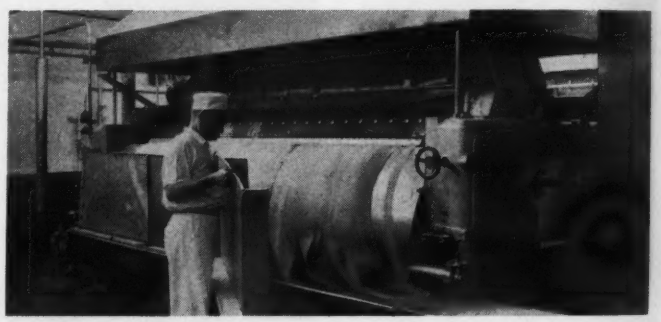


'Rides' ground swells in Alaska

STRUCTURAL-STEEL skid base on Scotch boiler overcomes effects of perma-frost — heaving of top layer of ground during warm-weather season — at salmon cannery in Larsen Bay, Alaska. Heretofore, firebox boilers used cracked as result of buckling ground.

Operation of packaged boiler, which must generate steam 24 hr/day during 30-day canning season, has been so successful that a second one (shown above in last stages of construction) has been ordered for next season. Each Kewanee boiler produces 17,500 lb of steam per hr and operates at 125 psi. They are 25 ft-9 in. long and 10 ft wide, and are made by American-Standard Industrial Division, 101 Franklin St., Kewanee, Ill.

7517 on Reader Service Slip.



Double-drums dry precooked baby cereal at H. J. Heinz

H. J. HEINZ COMPANY at its Pittsburgh, Pa. plant quickly converts precooked oatmeal, rice, barley or mixed baby-food cereals to solid films with atmospheric, double-drum dryers. Output of each dryer is approximately 200 lb/hr, the amount varying somewhat with moisture content of the cereal. Baby cereals are fed between drums by SS, pendulum-type feed pipe that distributes slurries uniformly into 120-in. long, V-shaped trough, formed by the two 42-in. diam. drums. Drums rotate toward each other, up on the outside and down on the inside, at variable speed of two to six rpm.

Thin films of cereal adhere to the steam-heated drums (up to 16 psig pressure) till dry, at which point they are removed by knife blades. Films are in contact with drums, heated to an average temperature of 293 F, from eight to 22 seconds.

Knife blades turn film back over rising drum surface so that it falls into SS conveyor. Film thickness is adjustable,

being determined by solids content of cereal.

Supplier: Blaw-Knox Company, Buflovak Equipment Division, Buffalo, N.Y.

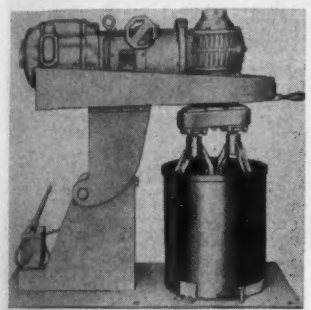
7518 on Reader Service Slip.

Tilt mixing head for easy can changing, cleaning

Features: Double-planetary mixer has compact, hydraulic mechanism for lowering and raising stirrers from can.

Dispersion-type stirrers overlap center of can; in operation pass close to each other as well as sides of can.

Description: New, changeable-can mixer is made in 8-, 12- and 20-gal capacities; is part of line that has other models ranging in capacity from one-qt to 150-gal.



Stirrers tilt back for easy can removal or cleaning

Variable-speed drive is standard equipment on units. Optional equipment includes vacuum covers and jacketed cans.

Supplier: Charles Ross & Sons Company, 148 Classon Ave., Brooklyn 5, N.Y.

7519 on Reader Service Slip.

Better mixing — less hp with side-entering units

Features: Larger mixing volume per equivalent horsepower is attained through improved hydraulic efficiency resulting from new design of super-pitch propellers.

Diameter of super-pitch propellers is smaller than comparable square-pitch, facilitating installation of large low-

"Sweco screening of fine-ground foods increased our business 25%..."

McGibney's Reconditioning and Processing Co. reduced production time, maintenance cost and downtime *by half or more,* and broadened its range of foodstuffs with a SWECO Vibro-Energy Separator. Until a 48-inch SWECO unit was installed a year ago, no efficient and economical way had been found to screen ground beet pulp, accounting for one-fourth the total volume today. This progressive Los Angeles business specializes in upgrading herbs, spices, chili powder, cinnamon, paprika, cocoa, salts, cellulose, plastic granules, and other difficult-to-screen materials. Easy portability of the SWECO unit to any point in the plant saves labor, and its unique ball tray design solves previous screen blinding problems. An added morale factor has been elimination of a serious dust hazard. For full details, application data, or free screening demonstration in *your* plant with *your* materials, write SOUTHWESTERN ENGINEERING CO., 4800 Santa Fe Avenue, Los Angeles 58, Dept. 264.

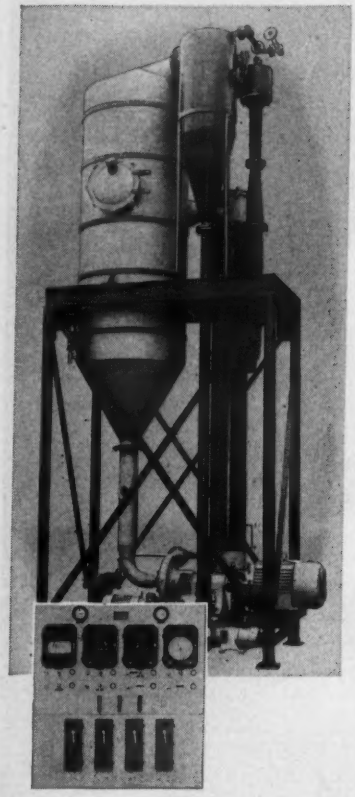
SWECO

+ Vibro-Energy separators, grinding mills, finishing mills +

7520 on Reader Service Slip.

this
PRE-EVAPORATOR

was custom-engineered to save 1200 boiler horsepower*



*A Pre-Evaporator of the type shown, was custom-engineered and fabricated by THERMOVAC to process 80,000 lbs. of juice per hour — at an hourly savings of 40,000 lbs. of steam, over existing equipment! Automatic remote control panel is 150 feet from the system.

THERMOVAC will custom-engineer and fabricate processing equipment to save you production dollars!

- Evaporators • Heat Exchangers
- Process Automation • Rotary Coil and Steam Jacketed Kettles
- Specialized equipment for the Food and Chemical Industries.

Write or call for immediate service; expert consultation!

PROCESSING SYSTEMS, THERMAL AND MECHANICAL EQUIPMENT

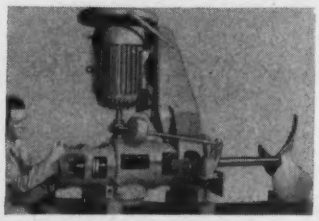
Thermovac

P. O. Box 209 • Stockton, California
Phone HOward 5-2661

7521 on Reader Service Slip.

speed mixers. Increased flow obtained by mixers together with increased power per unit (up to 50 hp) lowers initial investment.

Single 50-hp side-entering mixer, according to the manufacturer, will do the job of three conventional 25-hp units; a 15-hp mixer can be used in most cases where 25 hp was previously required.



NSE side-entering mixers are fitted with hollow-quill speed reducers and independent bearing supports for shock-load protection. Power transmission is through right-angle, spiral bevel gears

Description: Line of HI-FLO, Lightnin NSE side-entering mixers is made in three basic sizes ranging from one to 50 hp.

Auxiliary line of side-entering mixers, Series RSE, is made for installations not requiring shock-load protection. These units are made in two basic sizes ranging from one to 25 hp.

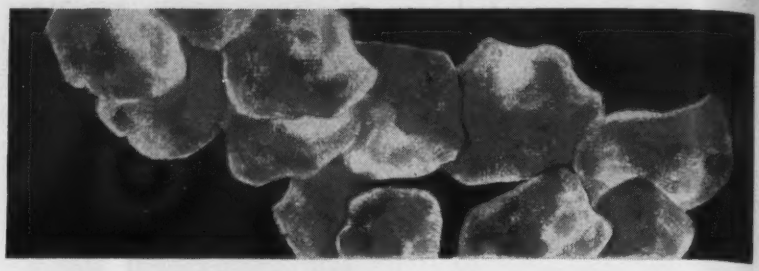
Supplier: Mixing Equipment Co., Inc., 170 Mt Read Blvd, PO Box 1370, Rochester 3, New York.

7522 on Reader Service Slip.

Pneumatically controls valve cycling, mixing pumps

Uses: Oscillator can be used to cycle process-control valves, control air or gas driven proportioning pumps or to cycle test work in laboratories.

Features: Instrument is a pneumatically actuated timer that has no moving parts and uses no electricity. Signal impulses, which are essentially rectangular waves, are adjustable in frequency from 0.3 to 60 cycles/min and can



How to make more chips fall where they pay!

Ask a food processor, particularly in the deep-fry industry, what factors contribute to a profitable operation. Most likely he will say, "A steady source of heat with good temperature control."

That's why Cleaver-Brooks Peak-Temp heaters are important to the food processing industry. They offer fully automatic operation and complete reliability with excellent temperature control up to 600 F.

The Industrial Peak-Temp is a packaged, direct-fired heater that raises transfer liquid to high temperatures — up to 600° — without pressure problems associated with steam. Transfer liquids can be circulated through coils, molds, jacketed vessels, rolls, or other heat exchanger equipment.

And Peak-Temp does it with maximum reliability. Case histories show that some food processors have enjoyed fully automatic operation for years without even shutting down for cleaning.

Write today for more information on Peak-Temp heaters. Available in sizes through 5,000,000 Btu/hr output. Cleaver-Brooks Company, Dept. K, 357 E. Keefe Ave., Milwaukee 12, Wisconsin.

Cleaver Brooks
ORIGINATOR AND LARGEST PRODUCER OF PACKAGED BOILERS

7523 on Reader Service Slip.

be preset in amplitude between 0 and 30 psig.

Description: Serv-Gauge Oscillator can be panel or surface mounted. For easy servicing and installation without case, it has removable plate on which all components are mounted.

Supplier: Associated Control Equipment, Inc., PO Box 136, Coraopolis, Pa.

7524 on Reader Service Slip.

Process or clean ultrasonically

Uses-Features: Although primarily for cleaning, ultrasonic unit can also be used for dissolving, blending, emulsifying and de-aerating. Because

Tanks can be used interchangeably; have low-level drain with screw cap for emptying while in operating position

of larger capacity, up to 8 gallons, it can be used for production applications as well as laboratory requirements.

Description: Blackstone SG-3 Ultrasonic System is available with standard, interchangeable tanks of 4-, 5- and 8-gal capacity. For increased sonic-power density, smaller 1-, 2- and 3- gal tanks are also available.

System has patented magnetostrictive transducer which is constructed of more than 200 individual nickle elements. Transducer will not heat processing fluids of low temperature; will produce maximum sonic output even with 400 F fluids.

Supplier: Blackstone Corporation, 1111 Allen St., Jamestown, N.Y.

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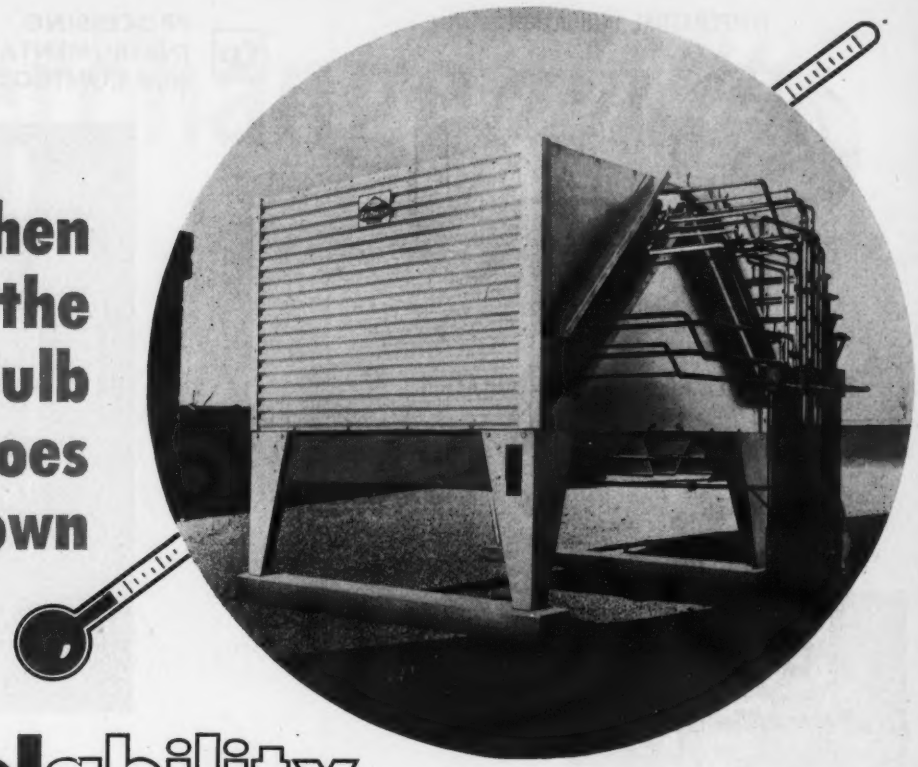
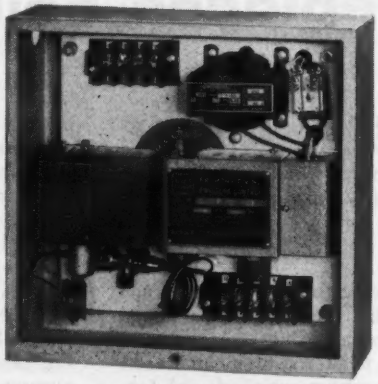


when the Dry Bulb goes down

controlability

stands out in Marley DriCooler®

AIR COOLED CONDENSERS



DIAL THE PRESSURE YOU WANT
DriCooler Damper Control does the rest. A single setting of this simple control maintains correct pressure regardless of dry bulb fluctuation.

SIMPLY SUCCESSFUL—SUCCESSFULLY SIMPLE: that is a factual description of DriCooler Damper Control System. Design simplicity that eliminates pressure valves, by-pass piping and oversized receivers is basic in the Marley method that requires no coil flooding, no added refrigerant charge in low dry bulb periods.

DriCooler Damper Control System is pressure actuated and ignores dry bulb drops. By governing intake air and air flow, it maintains uniform condensing temperature during critical periods without adjustments. It is never necessary to out-guess the weather man.

DriCooler Damper Controls are building outstanding records of successful service in cities with widely varying dry bulb conditions, like Douglas, Arizona and Montreal, Quebec. Ask the Marley Man to show you facsimiles of certified recordings that show how DriCooler Damper Controls perform on single- or multi-circuit jobs.

Customer Certified

U. S. and Foreign Patents Pending

THE MARLEY COMPANY • KANSAS CITY 14, MISSOURI

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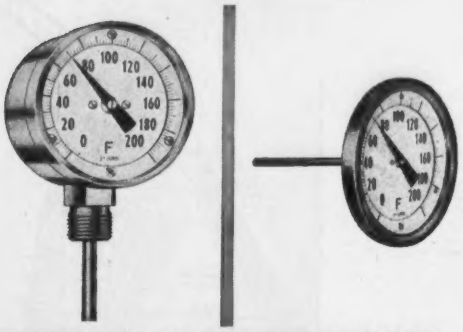
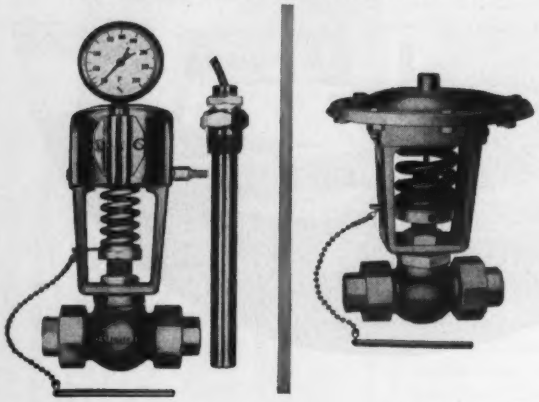
TEMPERATURE INDICATION



TEMPERATURE AND PRESSURE REGULATION



American Instruments have every quality required to match your process needs

American Bi-Metal Thermometers make accurate temperature readings sharp and sure because: 1) they are precision-built for sustained accuracy and 2) have the unique Maxivision® dial that eliminates point-of-view differences. Stainless steel construction safeguards against corrosion. Hermetically-sealed models meet the severest service conditions. *Dial sizes:* 2", 3" and 5". Temperature ranges to suit the application. All types of connections. Stems to 24"; wells to fit all lengths. *Write for Catalog 155.*

American Temperature and Pressure Regulators give the fastest corrective response because: 1) the stem can't bind and retard valve action; 2) a bellows seals off the stem and makes practical a nonleaking packless valve. They are precision regulators that accurately control your most critical temperatures and pressures. Maximum use is made of stainless steel and bronze. *Regulator sizes:* For temperature—½" to 4". For pressure – ½" to 2". *Operational ranges:* Temperatures as low as −15°F. to 50°F.; as high as 240°F. to 340°F. Pressure–250 lb. design. *Write for Bulletins 114C and 116.*

AMERICAN INDUSTRIAL INSTRUMENTS

A product of

MANNING, MAXWELL & MOORE, INC.

Gauge and Instrument Division • Stratford, Connecticut
Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario

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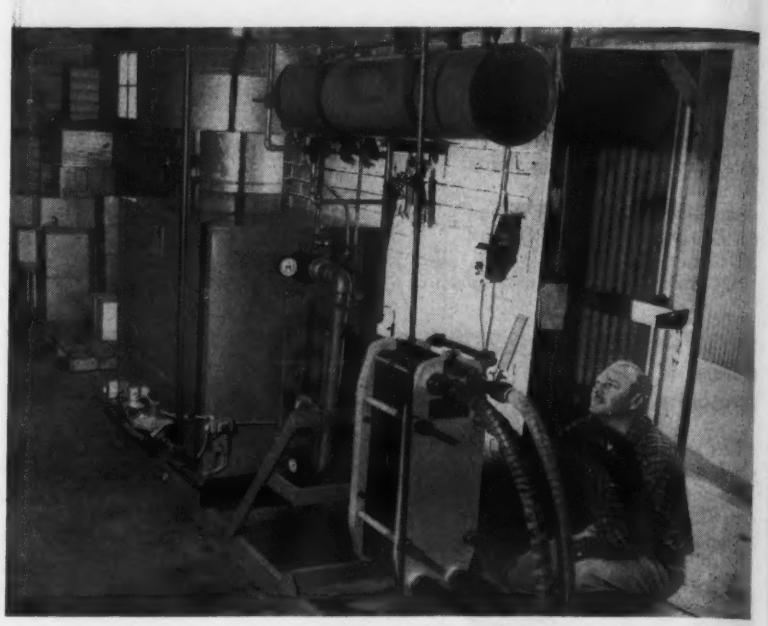
fp PROCESSING, INSTRUMENTATION and CONTROL



Compact, closed system adds boiler capacity at low initial cost; regenerative heat exchange lowers fuel bills. Bulk pasteurized wine is quickly heated, cooled to enhance quality

For 'off-season' saving . . .

Hot water heater replaces boiler

ARTHUR ACCOMAZZO, President
PETER SMIDERLE, Winemaker
Cucamonga Winery
KARL ROBE, Associate Editor

PROBLEM: During the two-month grape crush season in the fall, Cucamonga Winery, Cucamonga, Calif., operates a boiler to furnish peak-season steam needs.

After juice has been crushed and fermentation and aging is underway, plant steam needs subside. Besides regular plant hot water, the only need for steam was in pasteurizing aged wines.

Nevertheless, the boiler had to be fired up each day to handle pasteurization. Boiler operator arrived an hour or two early in morning to have steam available.

Solution: A high-temp hot water heater would save money. Now used is a packaged unit consisting of the hot water heater and a plate heat exchanger, both mounted on a common base (see photo).

Incoming wine at 60 F is preheated by pasteurized wine in regenerative exchanger, which in turn is cooled to bottling temperature by incoming wine.

Heater uses natural gas, has 1,080,000 BTU output. Water is circulated at high velocity in closed circuit.

Water is heated to 200 F, and can be set at any temperature from 125 to 220 F. Delivery rate is approximately 1700 gpm.

Results: Now, boiler is fired only during peak production. Saving in operating expenses are estimated to amortize cost of new installation in three years.

Installation adds capacity at lower initial cost, facilitates closer control of pasteurizing temperature, and eliminates need for boiler water treatment.

APV Paraflow plate heat exchanger, sold by Pfaudler Sales Co., is product of the A.P.V. Co., Ltd., 137 Arthur St., Buffalo 7, N.Y.

7528 on Reader Service Slip.

Parker hot-water industrial boilers are products of Sid E. Parker Boiler Mfg. Co., 2035 East 37th St., Los Angeles 58, Calif.

7529 on Reader Service Slip.

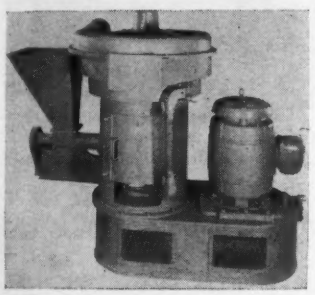
Pulverizes, classifies down to −1 micron

Uses-Features: Air attrition mill will reduce and accurately classify products to any specified fineness in range from 150 microns and — for certain products — down to minus one micron.

In preparing confectionery coatings and fillers, products of superior texture and flavor may be obtained at lower cost by mixing and grinding dry ingredients before introduction into melted fats; that is, milling sugar, cocoa, milk solids and other ingredients together to desired fineness.

For upgrading products, certain portions of feed can be extracted by a device connected to mill's recycling system.

Operation: Product is fed into mill, known as Hurricane Pulverizer-Classifier, by screw feeder located near bottom. Controlled flow of air is passed through unit, fluidizing product and lifting it through grinding zone into classifying section.



Vertical air attrition mill is available in two sizes: 24-in. with 60- or 75-hp motor, and 30-in. with 100- or 125-hp motor. Either size can be furnished with centripetal or centrifugal classification rotors

For pulverizing, patented "closed-end" grinding rotor turns with peripheral speed of 20,000 fpm. Rotor creates vortex action which produces intense, high-velocity air attrition that reduces material size by particle-against-particle impingement after particles become too small to be effected by shock and impact.

In classifying zone, oversize particles are rejected and returned to grinding zone for

Interchangeability

wider range of cut sizes
...on the new Urschel model G
...on your present Urschel model

now
new interchangeable parts for:

DICES (3 sizes) 3/8″ – 7/16″ – 1/2″

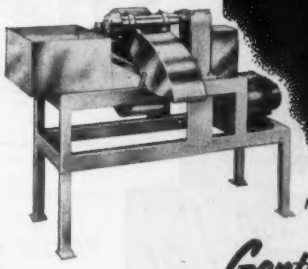
FRENCH FRY CUTS (3 sizes) 3/8″ – 7/16″ – 1/2″

JULIENNE CUTS (3 sizes) 5/32″ – 3/16″ – 1/4″

SLICING – any thickness to 3/4″

SPECIAL CUTS – 3/16″ x 3/16″ x 3/8″ – 1/4″ x 3/8″ x 3/4″ – 1/8″ x 3/4″ x 3/4″ – 1/2″ x 1″ x 1″

For:
Apples
Beets
Cabbage
Carrots
Celery
Citron
Fruits
Melon
Mushrooms
Onions
Papaya
Peaches
Pears
Peppers
Pickles
Pineapple
Potatoes
Tomatoes



Model G Dicer

PRECISION HIGH SPEED FOOD CUTTING EQUIPMENT

For complete information write:

URSCHEL LABORATORIES INC.
VALPARAISO, INDIANA

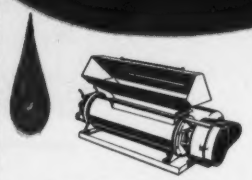
Gentle precision-cutting of products up to 11 tons per hour.

Designers and manufacturers of precision, high speed cutting equipment for food products.

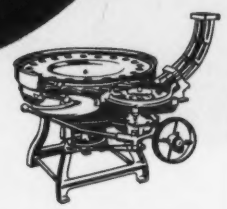
7530 on Reader Service Slip.

How FMC "matched set" equipment improves efficiency and profits in tomato processing

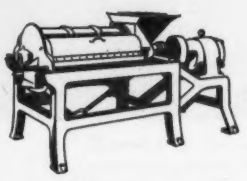
Any golfer knows that a matched set of clubs, tailored for him, will improve his game. The same thing happens when processors install "FMC matched equipment" for whole pack tomatoes, juice or other tomato products. Each highly-specialized piece complements the rest—in basic design, space requirements, construction, capacity, speed and ease of operation. Results: You increase product recovery, savings and efficiency all along the line. Most important, your pack will show the difference, in consistent quality and profits. Write for details or call your nearest FMC representative. Do it today.



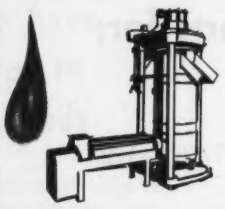
FMC TOMATO CHOPPER



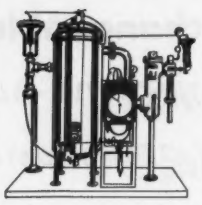
FMC HAND PACK FILLER



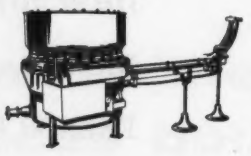
FMC PULPERS AND FINISHERS



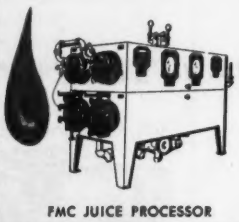
FMC VERTICAL SCREW PRESS



FMC DEAERATOR



FMC JUICE FILLERS



FMC JUICE PROCESSOR

FMC HIGH-PRESSURE TOMATO LINE

FMC JUICE EXTRACTOR

Other FMC Tomato Equipment Includes:

Flood Washers • Paste & Puree Fillers • Peeling & Inspection Tables • Heating Coils & Stainless Steel Tanks • "Sterilmatic"® Continuous Pressure Cookers & Coolers • Scalders • Atmospheric Cookers & Coolers • Pre-Heaters

FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
Canning Machinery Division
General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

7531 on Reader Service Slip.

further reduction. Fines passed by classifier move into integral fan chamber where they are pneumatically conveyed to collecting system.

Supplier: The Bauer Bros. Company, Springfield, Ohio.

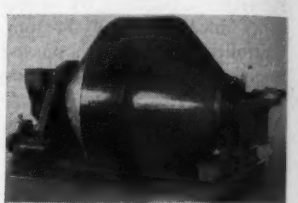
7532 on Reader Service Slip.

Up to 360 cu ft rotary batch mixers

Uses: For such food products as coffee beans, cocoa, cake mixes, gelatins and pudding mixes.

Features-Description: Rotary batch mixers are now made in models having capacities up to 360 cu ft.

Designed for fast batch mixing and quick discharge, models in 200 to 360 cu ft range have redesigned trunnion rollers and weight-carrying



Mixers can be equipped for automatic operation through remote-controlled intake and discharge

trunnion rings, and new cam locks on doors.

Munson mixers are dust-tight and leak-proof. Loading and discharging without stopping, units mix ingredients with a four-way action.

Supplier: Munson Mill Machinery Company, 210 Seward Ave., Utica, N.Y.

7533 on Reader Service Slip.

See this month's "FP Hall of Fame Cartoon" on page 156, and then vote for large reproduction of your favorite on the Reader Service Slip.

plants, companies, personalities

H. J. Heinz Company

announces these major appointments for its new acquisition — Hachmeister, Inc.: A. W. Remensnyder to continue as president; Harvey L. Dunker from manager of Heinz Eastern Manufacturing Area to Hachmesiter executive vice president; John L. McCain, former Hachmeister vice president to V.P. in charge of production; Dr. Hermann Birnbaum, former head of research, to V.P. in charge of research and quality control.

Seabrook Farms Company

received the American Legion's 1960 National Certification of Appreciation for employing the physically handicapped.

Campbell Soup Company

has appointed James C. Walker assistant plant manager of the Sacramento, Calif., plant, succeeding Earl G. Gratzer, now managing director of Campbell's Soups, S.p.A., the company's Italian firm. Walker had been director of accounting in the Camden general office.

Pet Milk Co. (Canada) Ltd.

Pet Milk's Canadian subsidiary, has acquired for cash Van Kirk Chocolate Corp., Limited, Toronto, whose major lines, distributed throughout Canada, include chocolate bars, buds, chips and coatings.

For more information on product at right, circle 7534 see information request blank opposite last page.

A NEW ADDITION TO THE SONAC LINE

POSITIVE ULTRASONIC LEVEL CONTROL

The components of Sonac (sensor actual Size)

Now, two new ultrasonic sensors, especially for level control have been added to the Delavan line of SONAC sensing and switching devices.

The single sensor system is recommended for liquid level control and the double sensor system for dry level control.

Control is maintained by installing the SONAC sensor through the wall of the vat, bin or hopper. When the oscillation on the face of the sensor is dampened or impeded by the material being sensed, the signal to the control unit changes, activating a relay.

FIG. 1—LIQUID LEVEL (One Sensor)

FIG. 2—DRY LEVEL (Two Sensors)

For level control, SONAC is accurate to .005" and has a response time of 25 milliseconds. Performance of the sensor does not deteriorate with age.

The level control uses to which SONAC can be applied are virtually unlimited. It is not affected by the viscosity*, specific gravity, conductivity, or capacitance of the material being sensed. Temperature or pressure changes of the material do not alter its performance. False signals are eliminated because SONAC may be adjusted so as not to sense steam, foam, or vapors.

*Viscosity may affect response time.

Canadian Representative:

KNOWLES & FOSTER (North America) Ltd.

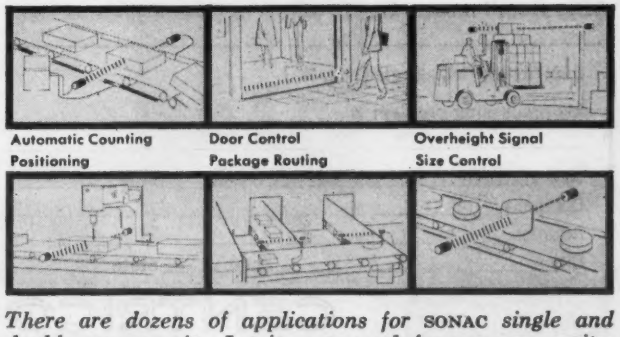
708 Terminal Bldg., Toronto 1, Ontario, Canada

A

SONAC is extremely rugged. Sensors are type 304 stainless steel. The electronic components in the sensors are hermetically sealed and will withstand pressures to 2000 psi and temperatures from −425° F. to +450° F. They are immune to shock, vibration or mechanical damage.

The control is a compact unit 5" x 5" x 5" and features transistor circuitry. Power consumption is one watt and the unit will operate in temperature ranges from 40° F. to 135° F.

Here's how SONAC can be used for sensing and switching applications other than level control.

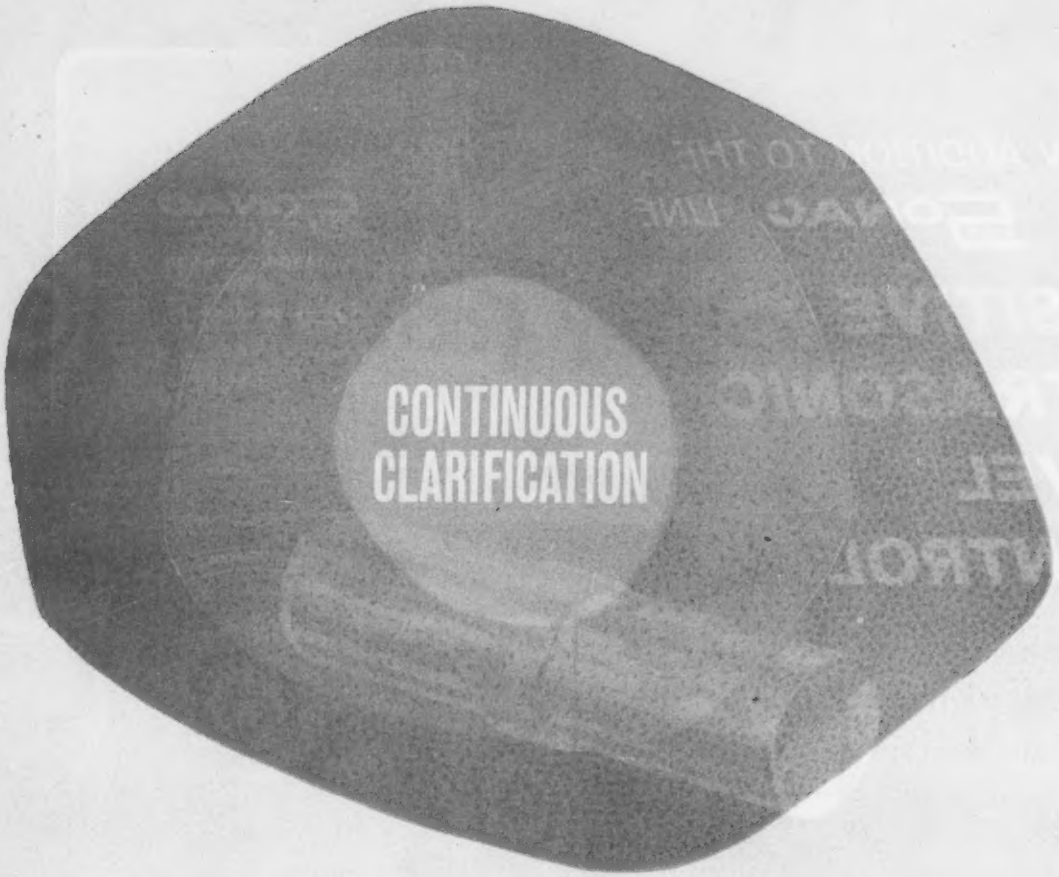


Automatic Counting Positioning | Door Control Package Routing | Overheight Signal Size Control

There are dozens of applications for SONAC *single and double sensor units. Let it go to work for you now, write:*

DELAVAN Manufacturing Company

WEST DES MOINES • IOWA



THE BIG SWING IS TO "BIG SAM"

It started with citrus processing...then prune and grape juice...wines...soluble coffee and tea...sugar solutions... protein extracts...now the Big Swing to "Big Sam" is reaching into every branch of the food industry. If old-fashioned, space- and time-consuming batch methods have put a damper on profits, it will pay you to check centrifugal processing with WESTFALIA's "Big Sam"— for fully automatic, around-the-clock, high capacity operation... "Big Sam" means Big Profits.

CENTRICO, INC., Englewood, N. J. F

My processing problem is:_____

Name_____ Title_____

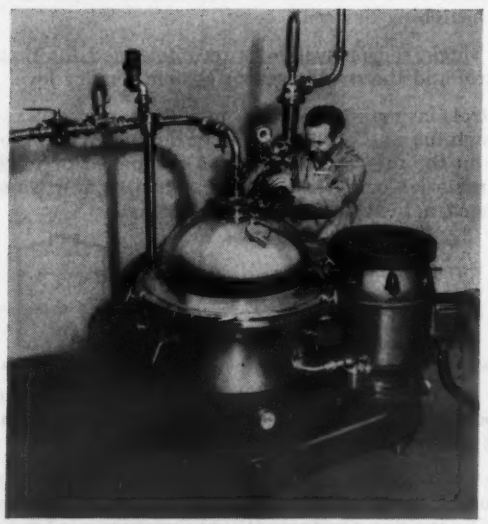
Company_____

Address_____

City_____ Zone_____ State_____

WESTFALIA SEPARATOR CENTRICO INCORPORATED

75 WEST FOREST AVENUE, ENGLEWOOD, N. J. • Phone LOWELL 9-0755
WESTERN DIV.: 3315 CAXTON COURT, SAN MATEO, CALIF. • FIRESIDE 5-7065



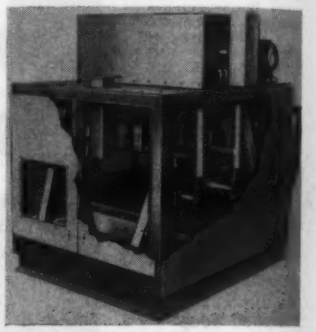
Used to control pulp solids concentration in orange juice, "Big Sam" Automatic De-Sludger in all-sanitary design (Model SAMN-15037) has found wide acceptance in Florida citrus industry. Similar installation is part of unique orange juice processing system developed by Minute Maid Company now in operation at Minute Maid's Plymouth and Leesburg, Fla. plants.

7535 on Reader Service Slip.

Automatically proportions bulk ingredients from ½ to 50 T/hr

Uses-Features: For continuously weighing bulk materials, weigh feeder automatically maintains preset feed rate from ½ to 50 T/hr.

Scale system has controls for proportioning several ingredients into process flow. A totalizer indicates lb/hr or T/hr, and presents summation of a day's run.



Belt and structural parts of continuous weigher are suspended from scale and specially designed to prevent dust and material accumulation

Description: Continuous weigher, Series CM12, consists of feeder, conveyor belt and Thayer flexure-plate scale.

Weighing mechanism has flexure plates in place of conventional knife-edge privots; therefore maintains its accuracy for long period of time. Entire system is enclosed in dust-tight housing with dust collection vent.

Supplier: Thayer Scale Corporation, Thayer Park, Pembroke, Mass.

7536 on Reader Service Slip.

Offers three compact, mobile freeze dryers

Three mobile freeze dryers with capacities of over 15, 40 and 100 lb for laboratory and pilot-plant work are described in four-page bulletin released by RePP Industries, Inc.

Smallest unit, 48 in. by 25 in. and 55 in. high, has three product trays and can condense in excess of seven liters

of water before defrosting is necessary. 40-lb dryer is 46 in. by 31 in. and 60 in. high, has four trays, and will condense in excess of 20 l.

Largest unit has six trays and will condense in excess of 50 l before defrosting. It is 60 in. by 44 in. and 72 in. high.

Bulletin — Freeze-Drying with the New Compact Sublimators — discusses in detail uses, operation, controls, sterile operation, stoppering under vacuum and defrosting. It tabulates all essential specifications for the three models.

7537 on Reader Service Slip.

Remotely control variable-speed drives

Features: Mechanical remote control for changing output speeds on Reeves variable-speed Motodrives helps centralize controls for greater operator efficiency.

Consisting of control-housing adaptor, flexible shaft and indicator handwheel, control can be specified on new units; is also available as a kit for converting drives now in use.

Dial on face of handwheel indicates speed setting

Description: Handwheel of flexible-shaft control is designed for panel or wall mounting. With mounting bracket, it can also be made free standing or mounted on machines.

Standard flexible shaft is ⅜ in. in diam and 5 ft long but can be specified in other lengths. Shaft is constructed to operate without backlash so that all handwheel movements will be transmitted without absorption.

Supplier: Reliance Electric and Engineering Company, 24701 Euclid Ave., Cleveland 17, Ohio.

7538 on Reader Service Slip.

from meat products to baby food

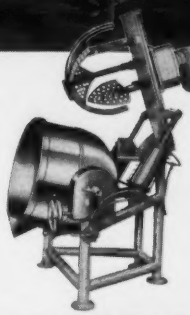
GROEN STEAM JACKETED KETTLES

braise or boil economically faster, simmer or stew without scorching

Controlled cooking temperatures and the efficient GROEN agitators assure proper cooking, uniform consistency and thorough mixing for any food products from Alphabet soup to Zucchini squash. Instantaneous heat transfer cuts processing time as much as 50%. Another time-saving feature is found in GROEN stainless steel construction which makes GROEN kettles virtually self cleaning. Our Engineering and Research Departments are always available to help you in developing custom equipment.

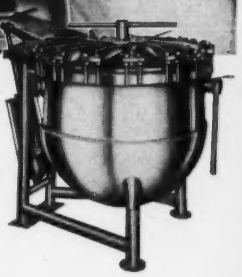
Above: Sanitary Cooker/Mixer kettles batch-cook at Geo. A. Hormel & Co.

Right: New GROEN tilting model with twin shaft agitator.



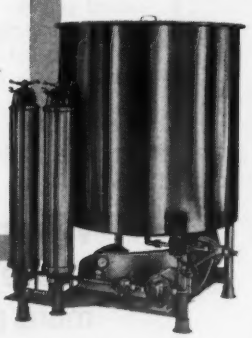
Above: Table-mount tilting kettles gently cook delicate custards, pie fillings.

Right: GROEN pressure cooker with one-point central cover lock.



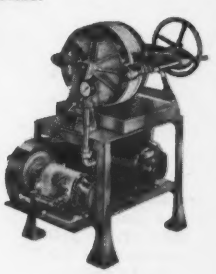
Sparkle-clear beverages with GROEN filters-tanks

The Frank B. Lomax Division of GROEN is one of the oldest and most respected sources for tanks and filters. Whether your needs be small or up to 5,000 gal. capacity, Lomax equipment can help you beat high production cost and meet all sanitary requirements of your community. Lomax products are ideally adapted to a wide variety of applications in the food, chemical, confection and pharmaceutical fields. Write for Catalog 2512.



Left: Mixing and filter unit with twin tubular filters and side agitator.

Below: Plate and frame filters for every type of product in standard and custom sizes.



SINCE 1907 GROEN

GROEN

MFG. CO.

1900 Pratt Boulevard, Elk Grove Village, Illinois

Eastern Sales Office:
1377 Palisade Ave., Teaneck, N.J.

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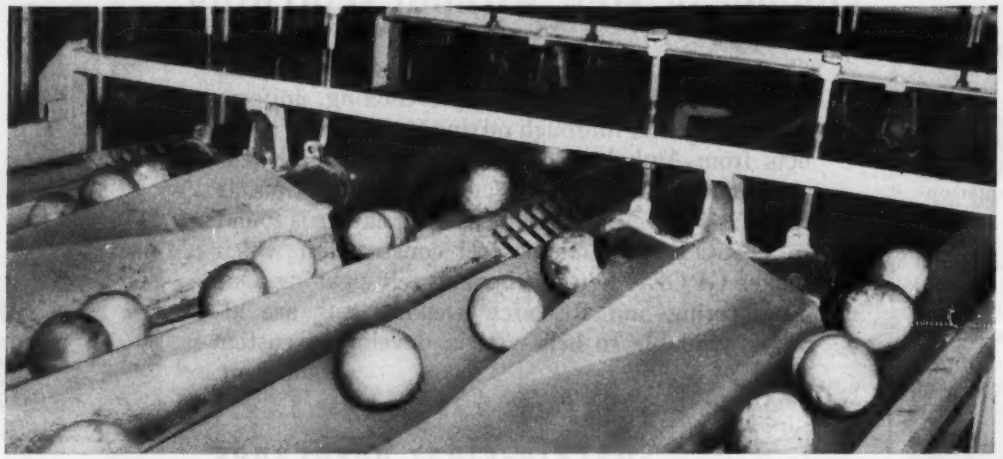
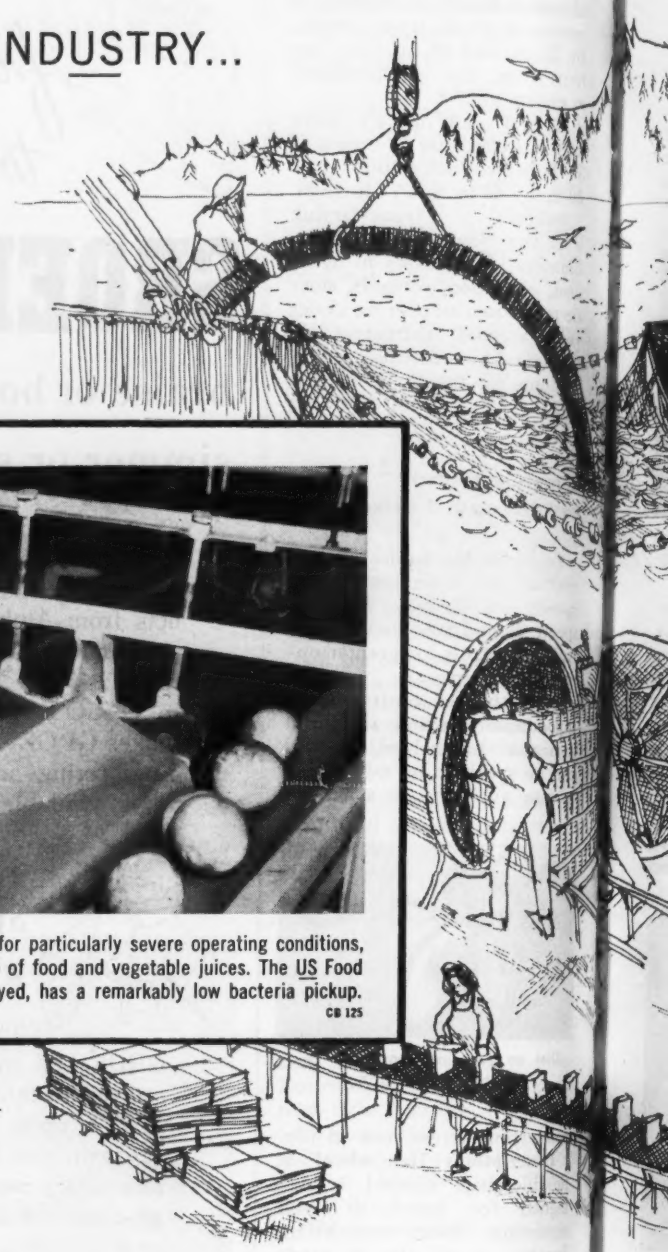
US RUBBER

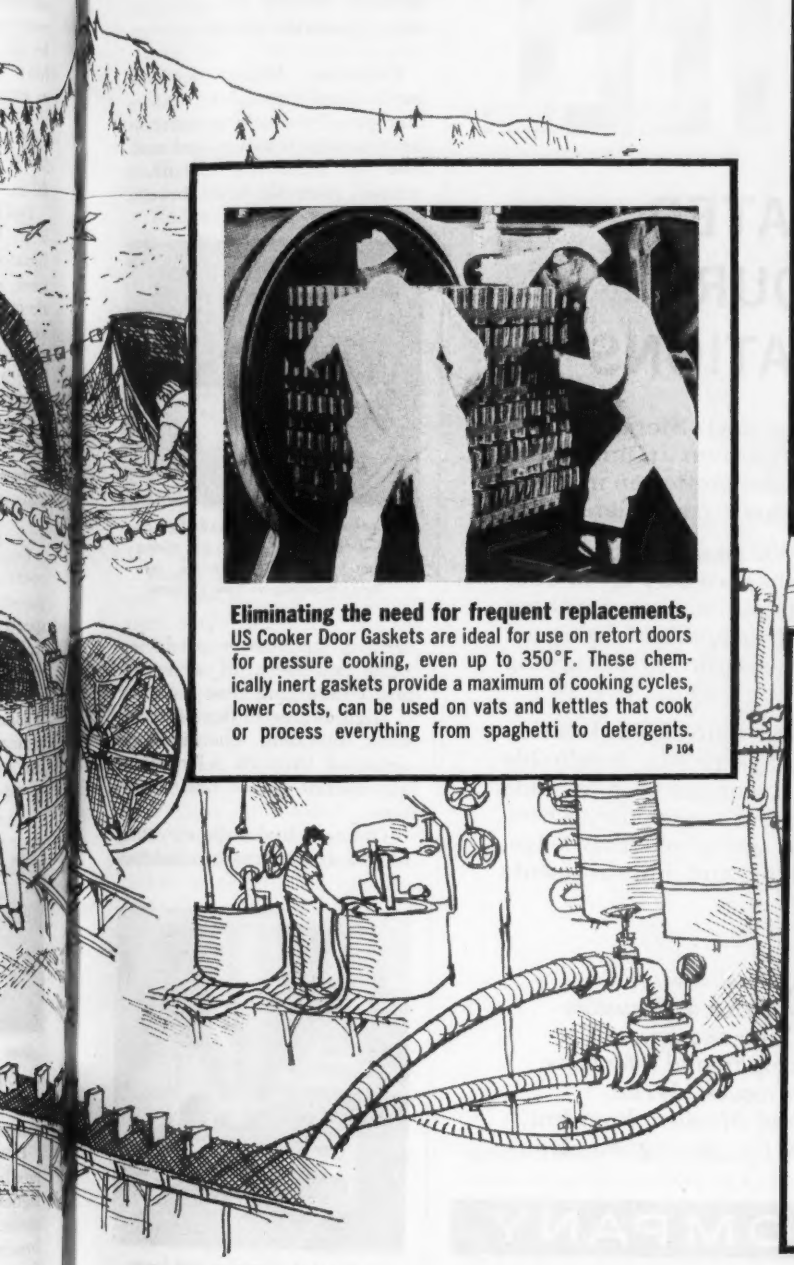
AT THE HEART OF INDUSTRY...



Conveying raw, packed or canned foods, the US Food Belt is built for particularly severe operating conditions, combines high physical strength with resistance to the destructive action of food and vegetable juices. The US Food Belt is easy to clean, does not impart taste to the food being conveyed, has a remarkably low bacteria pickup.
CB 125

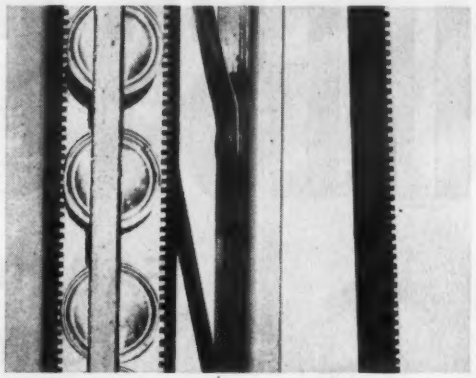


Wherever the processing of foods is involved, US Industrial Rubber Products are helping to make it faster, more efficient, less costly... more profitable. US not only knows the food industry's requirements, but has the products to fill them.



Eliminating the need for frequent replacements, US Cooker Door Gaskets are ideal for use on retort doors for pressure cooking, even up to 350°F. These chemically inert gaskets provide a maximum of cooking cycles, lower costs, can be used on vats and kettles that cook or process everything from spaghetti to detergents.

P 104



"Nothing short of spectacular," says an Anheuser-Busch brewery manager about two U. S. SteepGrade Conveyor Belts that lift wet 16-oz. beer cans at a 90° angle. The secret of this non-slip operation is SteepGrade's "gripper cleat" construction which holds the cans firmly, yet gently, allows less pressure and belt speed, eliminates damage to cans and smearing of print.

CB 124

"Helping to cut shipping and processing costs considerably, our Little Giant® Conveyor Belt has behaved perfectly in 4 years of service carrying franks from the peeling machine to packing personnel," says the superintendent of Wilson's Albert Lea plant. "No repairs have been needed, the belt is easy to clean, needs minimum maintenance."

CB 126

For every industrial rubber product need, turn to US. For Conveyor Belts, V-Belts, the original PowerGrip "Timing"® Belt, Flexible Couplings, Mountings, Fenders, Hose and Packings . . . custom-designed rubber products of every description. Discover why U.S. Rubber has become the largest developer and producer of industrial rubber products in the world. See your U.S. Rubber Distributor or contact US directly at Rockefeller Center, New York 20, N. Y.

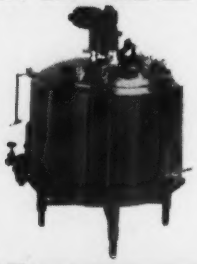
WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

United States Rubber

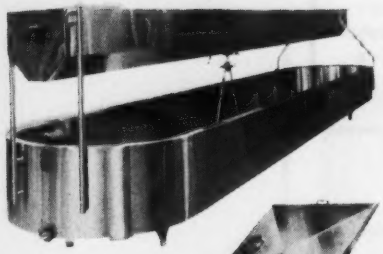
MECHANICAL GOODS DIVISION

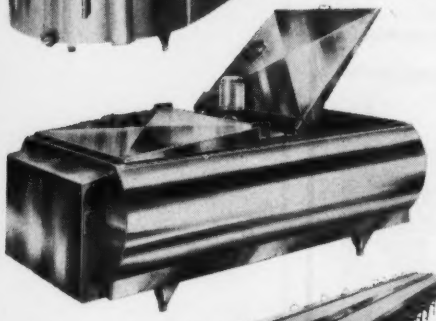
For more information on product at left, circle 7540 see information request blank opposite last page.

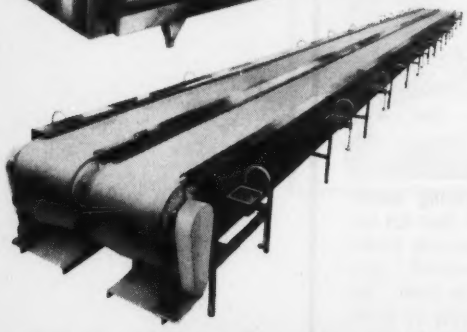
STAINLESS STEEL



FABRICATED TO YOUR SPECIFICATIONS







What do *you* need in stainless steel? Storage tanks? Processing equipment? Whatever it might be, Paul Mueller Company's master craftsmen in stainless steel can build it to fit your particular needs.

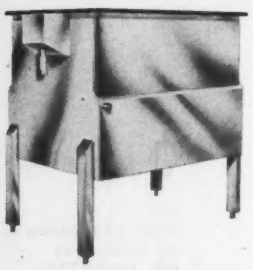
We have the facilities (130,000 square feet of plant area on 10 acres, housing all the necessary up-to-date machinery) to custom-fabricate almost anything you might need . . . and just enough old-fashioned pride of workmanship to be satisfied with turning out only the finest quality.

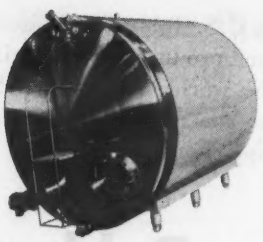
Our diversity of experience, centralized location and fabrication know-how have proven invaluable in serving many different companies, in a wide variety of industries, throughout the country. Often our own engineers, with their specialized knowledge, have been able to make significant improvements over original specifications.

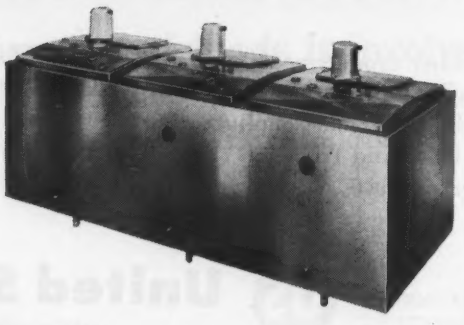
Stainless Steel

Let us help you solve your equipment problems with custom-fabrication. Your inquiry will be answered promptly and references forwarded on request. Write directly to Paul Mueller, President, Paul Mueller Co., Springfield, Mo.

PM PAUL MUELLER COMPANY



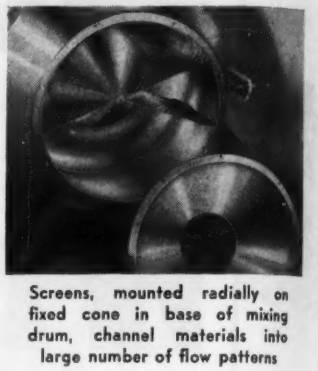




7541 on Reader Service Slip.

Speeds mixing of dry, granular solids

Features: Mixer achieves rapid and complete interchange of particle association as it slowly revolves end over end on trunnions. As drum rotates, material flows through

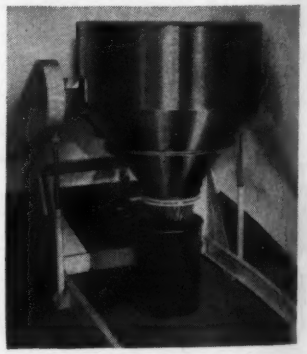


Screens, mounted radially on fixed cone in base of mixing drum, channel materials into large number of flow patterns

screens at bottom producing large numbers of diverging and converging flow patterns.

High degree of flexibility for most blending operations is obtained through selection of appropriate speed and screen size.

Optional hydraulic elevating mechanism increases efficiency



Optional dual raising and lowering device adjusts mixer to proper heights for loading or unloading at floor level

of material handling by making loading and unloading possible at floor level.

Description: Hobam Strata Screen Mixer is of all-welded, stainless steel construction.

Mixers are normally furnished with 5 to 7 rpm drives, but are supplied in any other speed required or with vari-

able-speed drive. Slotted screens available have ½-in., ¼-in., ⅛-in. and 1/16-in. perforations.

Ten-qt laboratory unit for testing mixes is available from manufacturer on request.

Supplier: Hobam, Inc., Box 91 — 115, Buffalo 17, N.Y.

7542 on Reader Service Slip.

Accurately feeds up to 400 oz/hr

Grooved Disc Feeder, Model 22-01, has accurately machined grooves in feeding disc for continuous and positive volumetric measurement of product. As disc revolves, grooves are filled, struck off, and product delivered.

Five standard groove sizes are available for maximum feed rates from 25 to 400 oz/hr, based on material density of 65 lb/cu ft and speed of 150 rpm. Feed rates can be changed over wide range by changing rpm through variable-speed drive.

Features, description and dimensions of feeder which was specifically adapted for milling industry are presented in four-page bulletin, Ref. No. 22-01.20-1, released by B-I-F Industries.

7543 on Reader Service Slip.

"When other outfits lay claim to baking old-fashioned bread, we just laugh . . ."

Now FMC offers the food industry a wide range of sodium acid pyrophosphate leavening agents produced by a new, improved process. Regular and tailor-made reaction rates, designed to suit your specific needs, are uniform from shipment to shipment and stable in storage even in hot, humid weather.

We will gladly send interested technologists the complete report of extended baking tests conducted by a leading food research laboratory. In these tests, refrigerated biscuits leavened with FMC Sodium Acid Pyrophosphate scored first in symmetry, volume, crust color and storage life!

If you would like a copy of this impartial report, samples of FMC S.A.P.P. or information on any other FMC Phosphates, use the coupon below or contact our nearest district office.

fmc CORPORATION ®
MINERAL PRODUCTS DIVISION
161 E. 42nd Street, New York 17

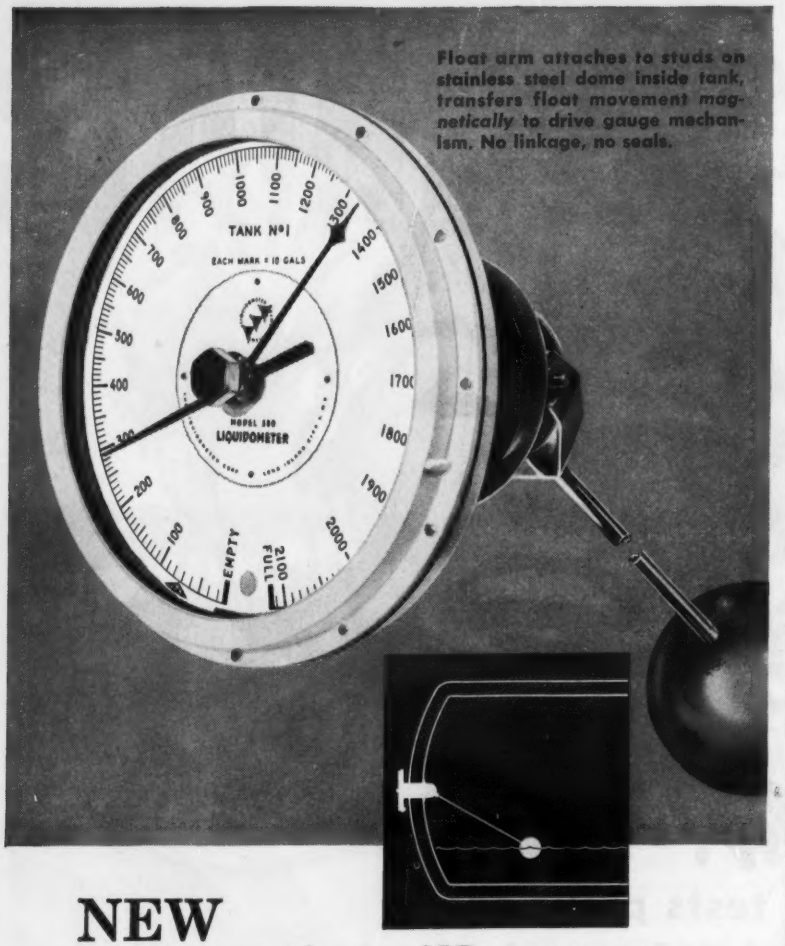
FMC CORPORATION
Mineral Products Division
161 East 42nd Street, New York 17, N.Y.

Gentlemen: Please send:

☐ Copy of report on refrigerated biscuits
☐ Samples of FMC S.A.P.P. for use in _____
☐ Information on other FMC Phosphates

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE ____ STATE _____

7544 on Reader Service Slip.


Float arm attaches to studs on stainless steel dome inside tank, transfers float movement magnetically to drive gauge mechanism. No linkage, no seals.
TANK NO 1
EACH MARK = 10 GALS
MODEL 580
LIQUIDOMETER
EMPTY
FULL
2100

NEW automatic milk gauge—at new low price

Liquidometer dial-type model is easy to read, easy to clean, completely dependable. And volumetric indications are unaffected by liquids of different densities.

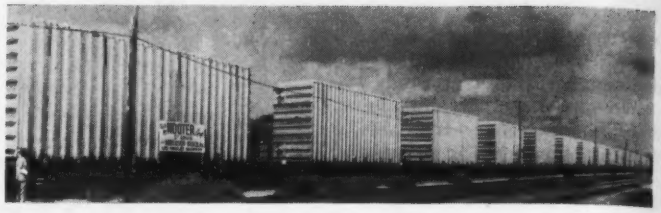
All sanitary requirements are met by the Liquidometer Model 580 Milk Gauge. Stainless steel construction of "inside tank" surfaces—including removable float arm—assures fast, easy, thorough hand or CIP spray cleaning. Magnetic coupling of float arm to precision drive mechanism eliminates the need for electricity or compressed air. Eye-level, clock-style indicator is easy to read . . . features an adjustable check pointer. Indicator housing is completely waterproof. And, due to new manufacturing techniques, the Model 580 automatic milk gauge costs less than previous models.

Liquidometer Bulletin 833 contains complete information. Write for your copy today.

THE LIQUIDOMETER CORP.

Dept. G, LONG ISLAND CITY 1, NEW YORK

7545 on Reader Service Slip.



Fermenters . . .

not box cars ride the rails to Anheuser-Busch brewery in Los Angeles, Calif. Part of five million dollar expansion program that will increase brewery's capacity by 60 per cent, each of the 16 tanks is 36 ft long, 15 ft wide and 9 ft high.

Tanks were fabricated out of Allegheny Ludlum's type 304 stainless steel by Nooter Corporation of St. Louis.

High-speed impact milling contamination-free

- **Rotor speeds up to 5000 rpm**
- **Quick disconnects for 20-min parts change**

Uses: For particle size reduction, deagglomeration, differential grinding, and wet and dry homogenization.

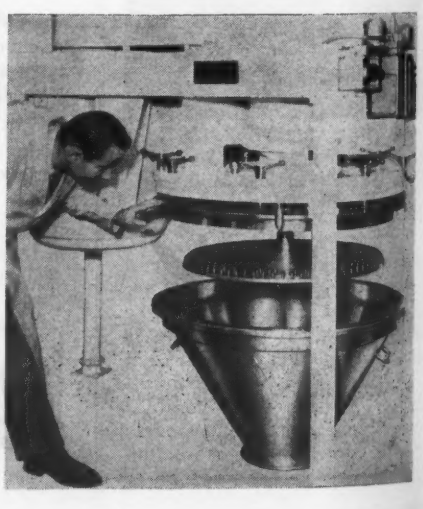
Features: Contamination-free processing of series of non-compatible products is made possible by quick-disconnect provisions that enable operator to remove and replace all product-contact components within 20 minutes.

With spare set of parts, batch operations can be put on an almost continual basis.

Centrifugal impact mill can operate at speeds up to 5000 rpm, producing material velocities in excess of 40,000 fpm. At these speeds, resulting impact energy will range up to 6800 ft lb/lb of process material.

Mill can be fitted with seals for operating under inert atmosphere.

Description: Centrifugal Impact Mill Model 51000 is custom built. Its capacity, which varies inversely as the square of rotor speed, can range up to several



High-speed centrifugal impact mill has 27-in. rotor and mounts 15- to 75-hp motor, depending on rotor speed and capacity desired

tons per hr. All parts contacting product are stainless steel, and construction is sufficiently heavy to withstand internal pressure surges up to 100 psi.

Supplier: Entoleter, Inc., 1187 Dixwell Ave., New Haven 4, Connecticut.

7546 on Reader Service Slip.

Slices, shreds or grates up to 600 lb/hr

For use with bread crumbs, fruits, vegetables, nuts or cheese, Artofex TR-2 Drum Slicer-Grater-Shredder has easy-to-change grate and shred drums, fast-adjust slice

drums. Several drums with different size perforations are available.

Unit with built-in two-hp motor and starter is 47 in. high, 16½ in. wide and 28 in. deep. It has 16-in. diam hopper, and discharge spout is 15 in. above floor level.

Supplier: Excelsior Industrial Corporation, 130 Broad Ave., Fairview, N.J.

7547 on Reader Service Slip.

Transmits meter readout one-half mile without outside power

Uses: For reading liquid flow in lines that are relatively far apart from single, central location or panel.

Features: Positive-displace-

Dorr-Oliver announces

THE NEW MODEL 20 MERCO® CENTRIFUGE

provides low capital and operating costs per gallon processed in the 75-200 GPM range

A complete line of Merco centrifuges is now available from Dorr-Oliver for the process industries. With the introduction of the Model 20 Merco, any capacity requirement in the 1-600 GPM range can now be met with a Merco centrifuge. Check your particular flow range against the table below for the model number to fit a specified flow range.

MERCO MODEL	9	16	18	20	30	H-30
CAPACITY GPM	1-20	15-100	50-150	75-200	90-300	200-600

This newest addition to our complete line of nozzle centrifugal equipment offers:

- Lower capital and operating costs per gallon of product processed
- Lower horsepower requirement per gallon of product processed
- New and improved feed arrangement
- Higher clarification efficiency

In addition to these specific advantages, the new Model 20 incorporates all of the unique Merco design features of:

- Overhead drive . . . eliminating the need for a bottom bearing
- Built-in hoist . . . for easy in-place cleaning of the rotor
- Camloc nozzles . . . quick and simple removal from *outside* the rotor
- Exclusive return flow principle . . . allows internal washing of solids
- Materials of construction . . . available in stainless steel or bronze

For more information on the Merco line of centrifugal equipment, write to the Food & Pharmaceutical Division office nearest you. Dorr-Oliver Inc., Stamford, Conn., 813 Merchandise Mart, Chicago 54, Illinois, or 2900 Glascock St., Oakland 1, Calif. Ask for Bulletin No. 2606.

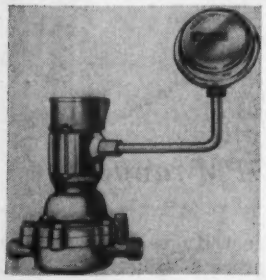
DORR-OLIVER

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

7548 on Reader Service Slip.

ment meters operate without any outside power source; enable accurate readings to be taken as much as one-half mile from totalizer counter.

Electrical pulses are generated by self-contained generator in Read-O-Matic meter. There are no distance limita-



Six-digit totalizer is ordinarily calibrated in gal or cu ft; can be calibrated to meet requirements of specific applications

tions except that transmission of pulse is limited to 10 ohms, total line resistance. Thus No 14 wire will carry pulses accurately for about one-half mile.

Operation: Rotary motion of generator's input shaft turns magnet that rotates over six coils. Special gear and gear segment are also turned till teeth end at which point, segment is released under tension of a torque spring.

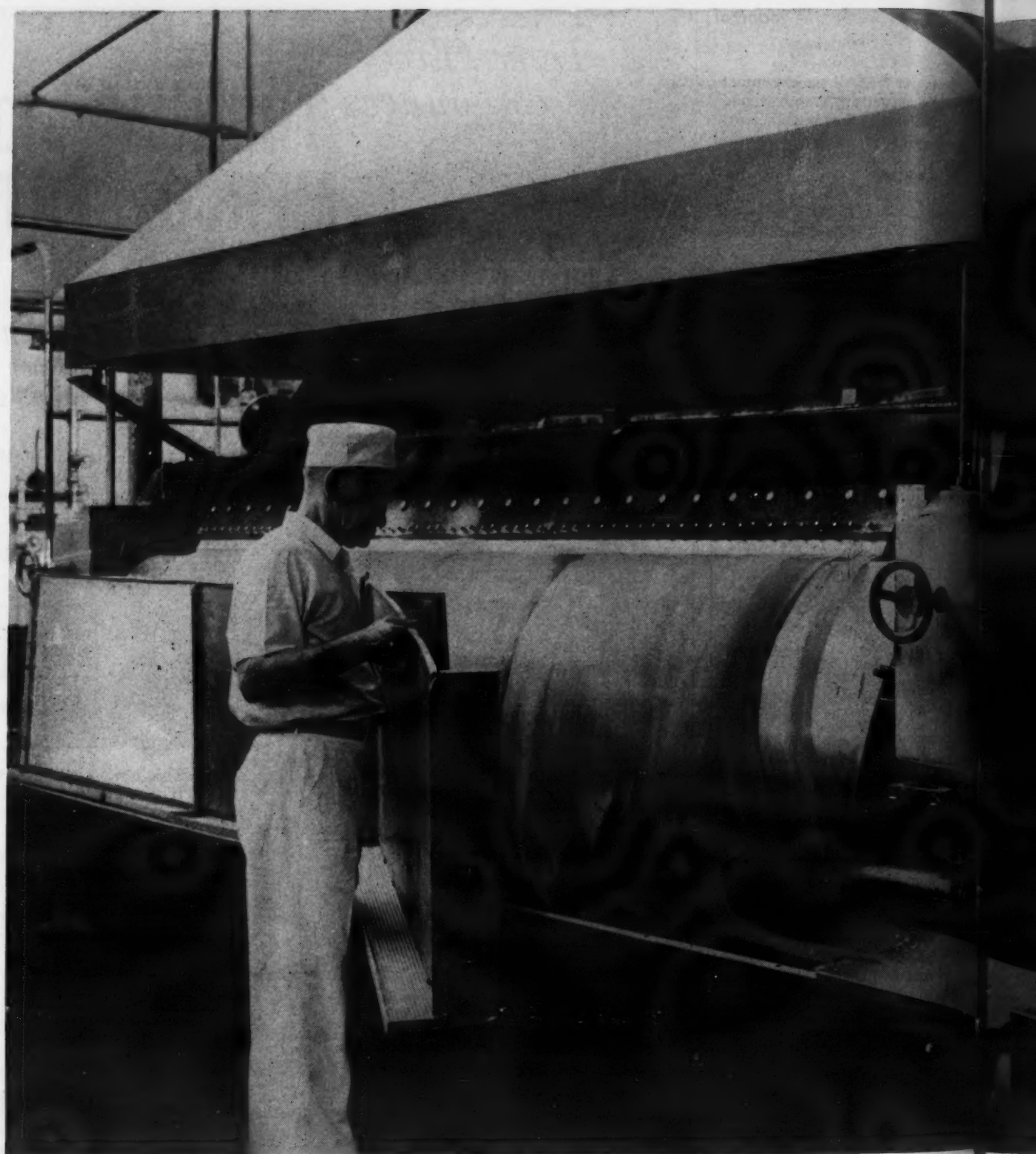
Quick return of magnet over coils generates an electrical pulse of about 3 v for transmission.

Supplier: Badger Meter Manufacturing Company, Industrial Products Division, 4545 W. Brown Deer Rd, Milwaukee, Wis.
7549 on Reader Service Slip.

Details three types of homogenizing valves

Three types of homogenizing valves — solid-type CP Shear-Flow, single-service Bell-Flow and Turbo-Flow valve — are highlighted in six-page Bulletin N-1-100, available from The Creamery Package Mfg. Company.

Valves, which can be combined with one another to obtain nine different valve combinations for processing or



Dried baby cereal peels off a Buflovak Atmospheric Double Drum Dryer at the rate of 200 pounds an hour at the H. J. Heinz Company plant in Pittsburgh, Pa. This is the third they have purchased.

Our Customer Technical Service Laboratory solves a processing problem like this every day

57 H. J. Heinz improves production and quality of dried baby cereals... and lowers cost with Buflovak double drum dryers

H. J. Heinz Company, Pittsburgh, Pa., had the problem of drying baby cereals by a continuous, low cost method that prevented waste and maintained quality and production. The answer is a process that uses a Buflovak atmospheric double drum dryer to convert cooked cereals in liquid form to dry flakes ready for packaging.

The cereals may be oatmeal, rice, barley, or mixed cereals, but all must be handled carefully to prevent spoilage and retain minerals and vitamins that could be affected by excess heat. Fast drying is essential and Buflovak dryers provide that. The cereal is in contact with the drum for only 8 to 22 seconds at an average temperature of 293 degrees F.

A stainless steel, pendulum-type feed distributes the liquid cereal uniformly along the full 120" length of the 42" diameter drums. The thickness of the cereal film between the drums varies according to the solids content and is adjustable by means of spring loaded adjusting screws that control the clearance.

Approximately 200 pounds of cereal an hour can be dried by each dryer. In addition to operating advantages, the simplicity of design of Buflovak double drum dryers makes maintenance easy and speeds cleaning procedures.

Buflovak Customer Technical Service Laboratory selects proper equipment scientifically

Expert engineers test products and processes in pilot plants, work with your engineers, or develop processes and procedures to answer your problems, whether they pertain to dryers or other processing equipment. Buflovak makes a complete line of dryers, including atmospheric and vacuum types, with chamber, rotary, pan and other models. Because of this, Buflovak engineers can recommend impartially the unit that best meets your job requirements. This service is yours for the asking. It has helped many companies. It can help you, too.

Catalog 380 describes the Buflovak Dryer line. Catalog 381 describes the Laboratory. Or get a complete fact sheet on the Heinz dryer installation. Write today. Buflovak Equipment Division, 1559 Fillmore Avenue, Buffalo 11, New York.

Buflovak Equipment Division
BLAW-KNOX

BLAW-KNOX

Blaw-Knox designs and manufactures for America's growth industries: METALS: Rolling Mills • Steel Processing Lines • Rolls • Castings • Open Hearth Specialties • PROCESSING: Process Design, Engineering and Plant Construction Services • Process Equipment and Pressure Piping • CONSTRUCTION: Concrete and Bituminous Paving Machines • Concrete Batching Plants and Forms • Gratings • AEROSPACE: Fixed and Steerable Antennas • Radio Telescopes • Towers and Special Structures • POWER: Power Plant Specialties and Valves

7550 on Reader Service Slip.

research, are illustrated and described in detail. Bulletin also presents company's line of homogenizers, made with capacities from 50 to 7000 gph at pressures to 5000 psi.

Literature contains installation photos of homogenizers, and lists capacity and horsepower ranges of 3-cylinder and 5-cylinder machines as well as general dimensions.

7551 on Reader Service Slip.

Automatically switches to stand-by equipment for continuous operation

Uses: For fluid-processing systems, sump and sewage units, and duplex pumps in boiler return systems.

Features: Alternator automatically changes normal operating equipment in emergency. With duplex pumps for example, if one pump fails or fluid volume increases beyond capacity of one pump, second pump is automatically started.

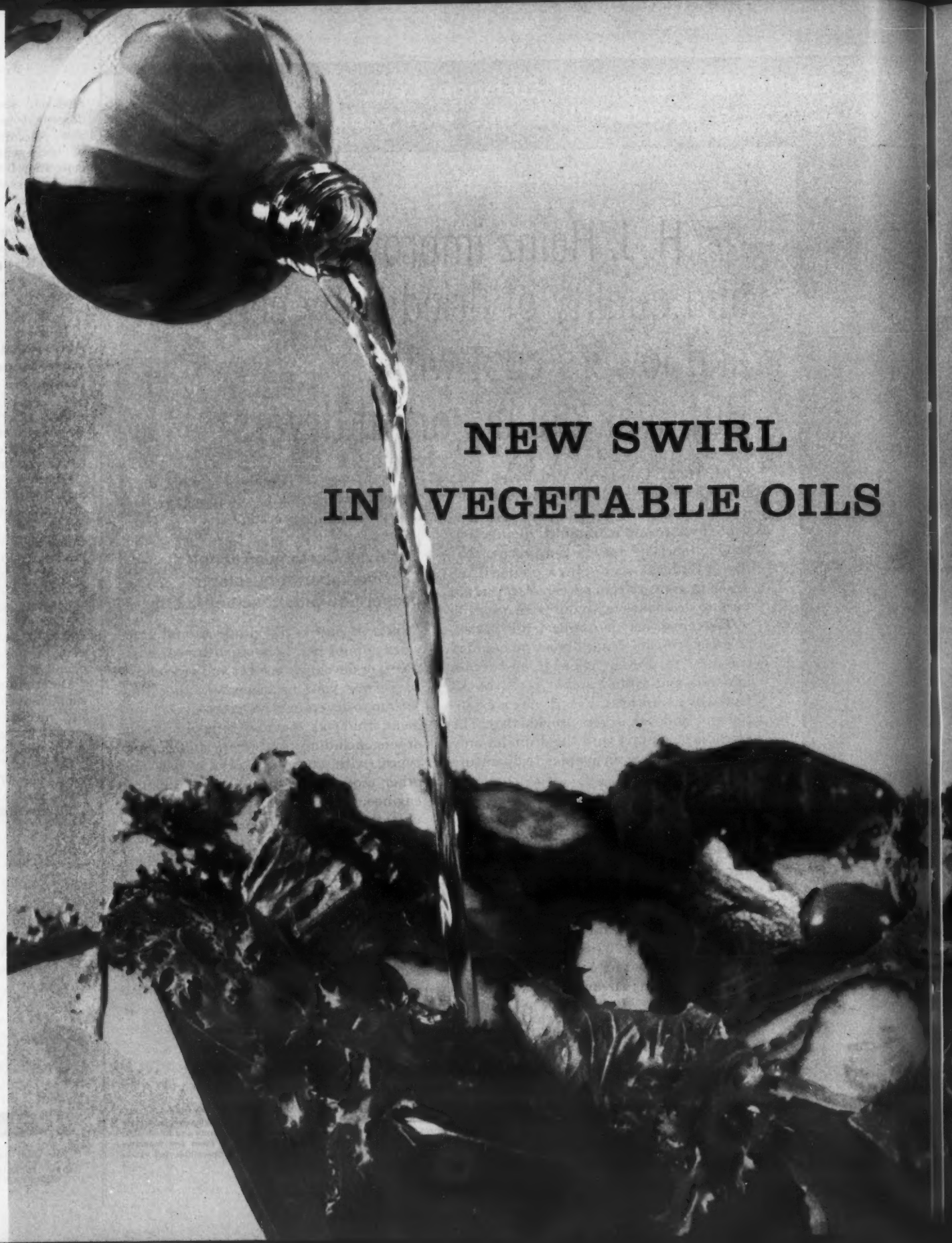
During normal on-off operation of duplex pumps, control will automatically alternate units to distribute wear equally.

Description: Control has simplified, fool-proof alternating mechanism. It has few moving parts and requires no lubrication or adjustment.

Supplier: Protection Controls, Inc., 7317 N. Lawndale Ave., Skokie, Ill.

7552 on Reader Service Slip.

"You went to Hawaii for pineapple techniques . . . remember?"


NEW SWIRL
IN VEGETABLE OILS

A five-day process cycle trimmed to a mere 18 hours . . . four costly steps eliminated . . . higher yield of higher quality products—these are the striking results of the new continuous refining technique for vegetable oils developed by Ranchers Cotton Oil Company of Fresno.

Sharples centrifuges play key roles in the removal of soapstock and the separation of stearine from oil. By developing forces up to 16,000 x G, a battery of Sharples refining centrifuges squeezes more oil from the soapstock for increased yields. A second group of Sharples centrifuges removes the stearine crystals in one continuous pass . . . with a minimum of entrained oil loss. The resulting low-iodine value stearine is a higher quality product with greater market value.

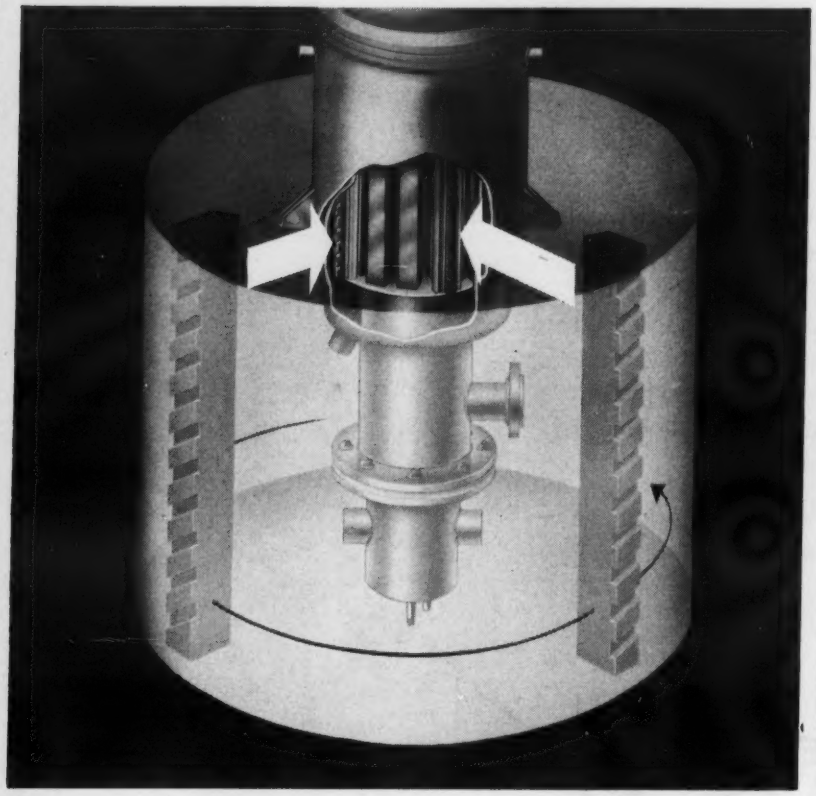
Sharples now provides engineering and licensing for the Ranchers Process . . . will be glad to discuss it, and other processing techniques, with you. The Sharples Corporation, 2300 Westmoreland Street, Philadelphia 40, Pa.

SHARPLES

REPRESENTATIVES AND
ASSOCIATED COMPANIES THROUGHOUT THE WORLD

For more information on product at left, circle 7553 see information request blank opposite last page.

FLUIDICS* AT WORK



How a "wiped" evaporator surface protects food flavor

These variable-speed controlled "wipers" are unique to the Pfaudler® Wiped Film Evaporator. They wet the *entire* evaporator wall with a thin, uniform film.

Your food product is exposed to heat for an absolute minimum of time. No burn-on. No product degradation. No loss of flavor. So important when evaporating *heat-sensitive* or *highly viscous* foods.

Four wipers are provided in the Pfaudler evaporator. They are free-floating and held in contact with the evaporator wall by centrifugal force of an internal rotor. The slots in each wiper *prevent* product curl and help accelerate product movement down and off the heated wall.

This gives you the best combination for full utilization of heat transfer area, an *ultra-thin* film for high "U" values, and very short contact time at elevated temperatures.

The Pfaudler Wiped Film Evaporator is a high-capacity production unit that can provide an output of up to 50 lbs./hr./sq. ft. of evaporator area.

Choose from standard models with 4 to 100 sq. ft. of evaporating area. Larger sizes are available on a custom basis.

Test your product *first* in the Pfaudler Test Center. More data found in Bulletin 991.

Write to our Pfaudler Division, Dept. FP-91, Rochester 3, New York.

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

PFAUDLER PERMUTIT INC.
Specialists in FLUIDICS . . . the science of fluid processes

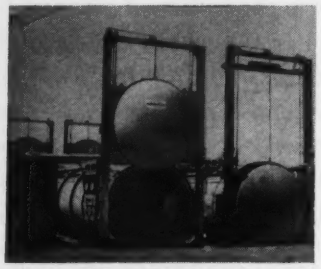
7554 on Reader Service Slip.

processing

Automates vacuum cooling of produce

Automated vacuum cooling system simplifies plant operation without introducing possibilities of production delays or damage to produce.

After doors are closed on tube, only one switch need be turned to set valves for air evacuation and start two vacuum pumps. Turning same switch to "cool" rearranges position of two valves, shuts off large vacuum pump, and turns on refrigeration in tube coils.



New plant with two 12-pallet tubes has capacity of 2½ to 3 cars of produce per hr

For higher cooling capacity, three vacuum pumps, greater coil surface in tubes, oversize ammonia accumulator and individual ammonia pumps for each tube are provided.

Supplier: Produce Processing Division of McDonough Steel Company, 800 — 75th Ave., Oakland 21, Calif.

7555 on Reader Service Slip.

Describes equipment for continuous freeze drying

One to two tons of food can be freeze dried daily in Leybold-Hochvakuum-Anlagen's single tunnel section. By adding intake and discharge locks, process is made continuous; by adding extra tunnel sections, capacity is increased.

Leybold's continuous freeze-drying plants are presented in eight-page bulletin, available in this country from LaPine Scientific Company. Printed in three languages including English, Bulletin G 18, "Freeze-Drying of Foods,"

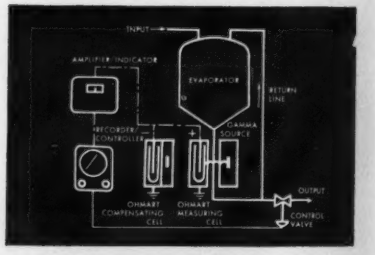
Satisfied with your process efficiency

. . . if not, save with

ohmart

Nuclear Gages for Process Measurement and Control!

Wherever in your processing you spend money for heat to thicken, evaporate, or dry, Ohmart Nuclear Control Systems can earn real profits for you. Ohmart gages control percent moisture or solids, degrees Baume, or specific gravity to narrow limits. You safeguard your product quality; avoid "giving away" some of your profits.



Ohmart gage controls evaporator output, maintaining optimum density. Gage has no moving parts—does not contact material.

EXCLUSIVE OHMART ADVANTAGES: Ohmart gages have a precision and repeatability of ±2% of full scale or better, with ranges as narrow as 0.025 s.g.u. (4°Be., 5°Tw., 10°API, 5% solids) available. Ohmart systems operate with high signal-to-noise ratio; are unique in their stability and simplicity. Measuring cell has infinite life. Low-drift circuit requires only 5-minute semi-monthly standardization check. Rugged gage construction withstands severe atmospheric and mechanical conditions. Installation and maintenance costs are low. *Look to Ohmart to improve your process control. Performance to specification is guaranteed!* Write for literature.

THE OHMART CORPORATION
223 Bogen St., Cincinnati 22, Ohio
Engineering Representatives in principal areas

7556 on Reader Service Slip.

describes advantages and theory of process.

It presents with illustrations elements of the system and a plant layout. There is also a discussion on heating, and ice condensers or steam ejectors. Cost estimates for continuous 160-sq m freeze-drying plant are tabulated.

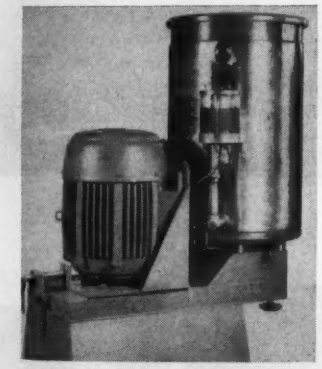
Another publication, four-page catalog entitled Leybold Rotary Vane Gas Ballast Pumps, describes line of vacuum pumps. Also available from LaPine Scientific, catalog contains illustrations, specifications and performance curves on four pumps.

7557 on Reader Service Slip.

High-speed dispersion mill

Already successfully being used in making salad dressing in one operation, mill can also be applied in production of ice cream, catsup, baby foods or chocolate syrup.

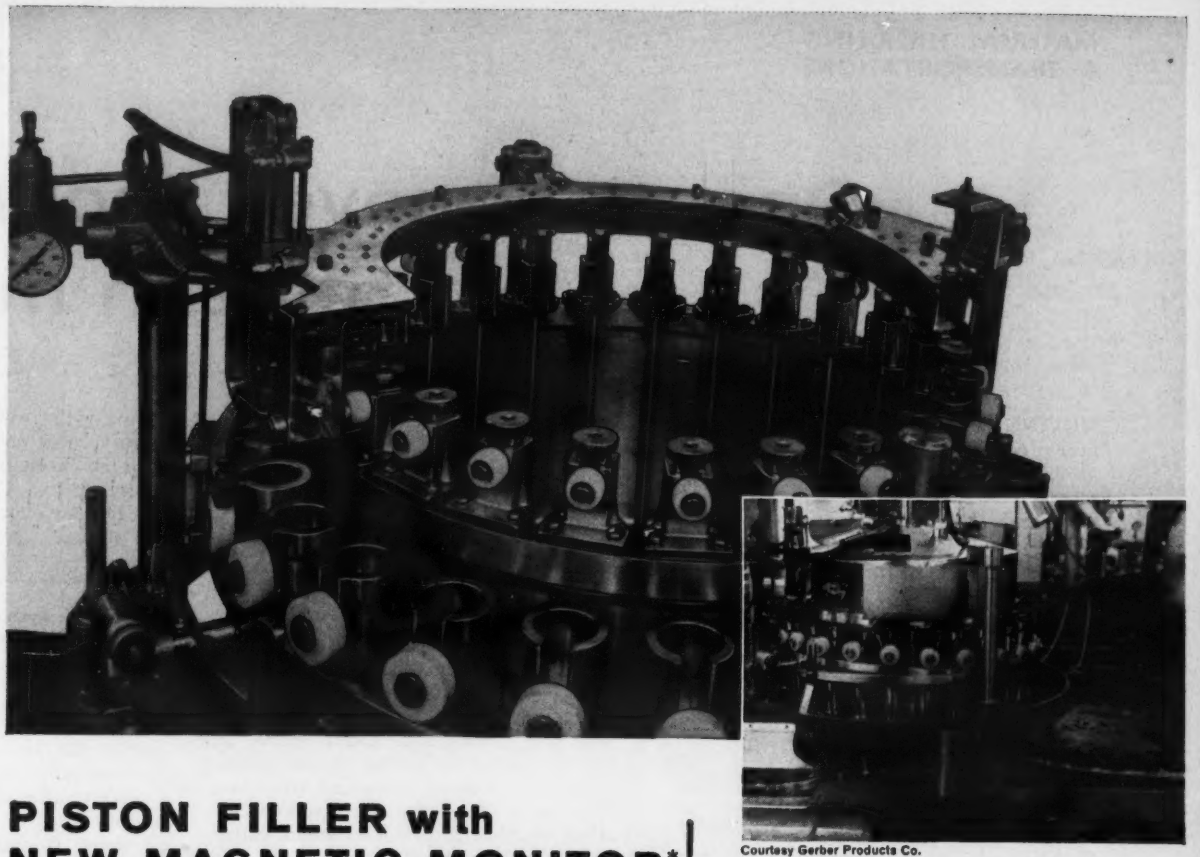
In salad dressing operation, mill eliminates several processing steps, according to the manufacturer. Production time is reduced as much as 30 min per batch, and only one operator is needed to run equipment.



Model OC Kady Mill, shown, has working capacity of 55 gal, total capacity of 68 gal. Mills range from 1- to 1000-gal in size

Supplier: Kinetic Dispersion Corporation, 95 Botsford Pl., Buffalo 16, N.Y., maintains a laboratory for testing product samples submitted.

7558 on Reader Service Slip.



Courtesy Gerber Products Co.

PISTON FILLER with NEW MAGNETIC MONITOR*

prevents valve damage and costly down-time

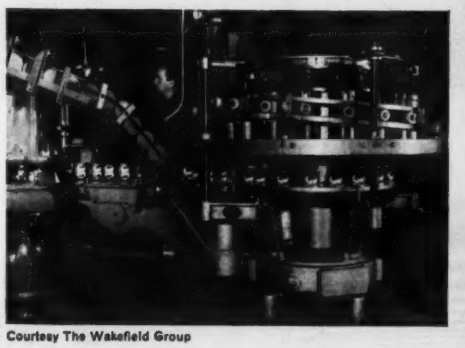
New, higher standards of packaging economy are being realized by processors of a wide variety of products. VOTATOR Piston Fillers give close-tolerance filling of liquids and viscous materials at remarkable speeds. No-container-no-fill controls safeguard against interruption of operation and waste. And, new "Magnetic Monitor" prevents costly damage and downtime.

The Magnetic Monitor on VOTATOR piston fillers consists of a combination of indestructible permanent magnets and the pneumatic lift for positioning the valves. This assembly, with only two moving sections, provides:

a. Positive no-can, no-fill operation.
b. The elimination of *every* possibility of a valve jam due to foreign material in the product or the malfunction of any associated equipment.
c. A completely smooth valve action to eliminate all splashing of product.

This is another VOTATOR piston filler *first* that warrants your immediate interest. You will quickly recognize the advantages and important savings it offers. Write *today* for Bulletins PED259 and PED260. Girdler Process Equipment Division, Chemetron Corporation. Louisville 1, Kentucky. Sales Offices: Chicago; Louisville; Marietta, Ga.; Montclair, N.J.; San Francisco.

*Trademark; Patent applied for



Courtesy The Wakefield Group

Votator Trademark a Product of CHEMETRON Corporation

7559 on Reader Service Slip.

One man moves 'mountains' of coffee in minutes

MOVING MOUNTAINS of "mountain-grown coffee" used to be a laborious task at J. A. Folger & Company's Portland plant, which serves all or portions of seven northwestern states.

Not only were the pallets of bagged coffee unloaded one-at-a-time from the trucks — which pick up their loads at Portland's ship dock — but each pallet-load also had to be separately weighed, then sampled and coded for inventory.

Now, unloading, weighing, sampling and coding are accomplished twice as fast — an entire 12-pallet, 240-bag truckload of coffee in 12-15 min — by just one man operating a unique new conveyor system, which includes:

Truck-unloading conveyor, consisting of three strands of C-131 combination chain (a multi-purpose chain adaptable to use with various attachments) about 40-ft centers;

Scale conveyor, consisting of three strands of C-131, about six-ft centers;

Storage conveyor, consisting of three strands of C-131, about 27-ft centers.

Each of the three major conveyor sections — truck unloading, scale and storage conveyor — are powered by individual drive equipment, enabling the operator to control each conveyor section individually from his station at the scale (see large photo).

At receiving department, the entire truckload of 12 pallets of coffee is removed from truck at one time by means of two pulling attachments, consisting of three-in. channels, about seven ft long.

One channel, placed behind the last pallet in front of truck prior to loading (photo 1), is connected to two chains which pass beneath load between the truck's gravity rolls.

The two pulling attachment chains, in turn, are connected to the second seven-ft channel, which is connected by cleats to conveyor for unloading (photo 2). Pulling channel is removed when entire truckload is on conveyor.

(Inset photo shows one of three hinged gravity-roll sections which link in-truck rolls with in-plant receiving conveyors.)

Once the pallets are pulled entirely from the truck, they are conveyed right up to head-shaft of unloading conveyor, and come to rest on a section of gravity rollers leading to the scale conveyor.

At this point, the six-ft-long scale conveyor centers a single two-pallet, 40-bag stack on the scale.

During the weight recording, conveyor operator also obtains a sample of coffee for a lab check, and codes the coffee bags for inventory.

Scale conveyor then pushes stack onto the storage conveyor. An electric-eye startup for storage conveyor (photo 3) automatically moves stack ahead far enough to allow for one more pallet stack. Arrows point to 15-hp unloading conveyor motor (upper), and 3-hp scale conveyor motor (lower).

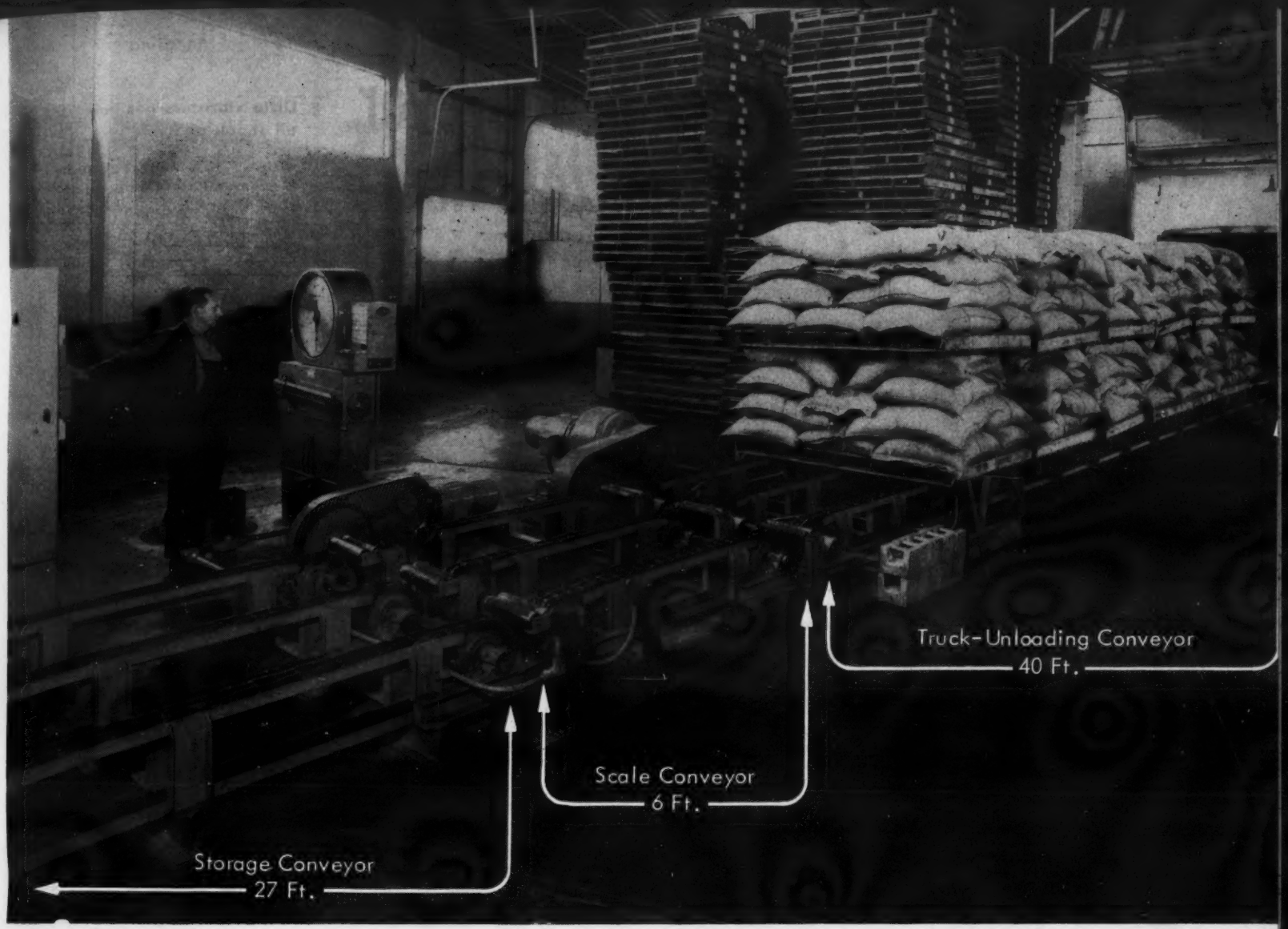
Conveyor system at Folger engineered by Link-Belt Co., Prudential Plaza, Chicago 1, Ill.
7560 on Reader Service Slip.

The storage conveyor (photo 4) has space for four stacks. When the first stack reaches end of conveyor, it is moved by a lift truck to storage in adjacent warehouse.

As soon as one stack is removed, an electric eye (arrows) located at head of conveyor starts the conveyor, and it moves another stack forward to fork truck pick-up position. END

1

2



An entire truckload *of coffee, removed from truck at one time, can be accommodated on the approximately 80-ft-long conveyor system. One man controls from his station at the scale*

3

4

Another first from Standard Conveyor

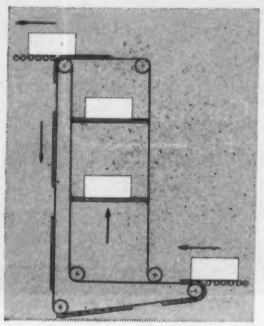
New continuous vertical conveyor revolutionizes floor-to-floor movement

Escaveyor self-loads, self-unloads, lifts products straight up or down without tipping or jarring. Provides smooth up, down, or reversible service.*

How Escaveyor speeds production. Here is the answer to your big need for a fast, continuous flow of commodities from floor to floor. Escaveyor moves commodities at a steady rate of 8 to 10 loads per minute.

How Escaveyor saves space. Escaveyor lifts packaged or unit commodities rapidly from floor to floor with the continuity of a belt conveyor. Yet your product always rides level. And look at the huge saving in space! It takes even less floor space than a conventional monostrand or straight-lift conveyor! Escaveyor's size is tailored to fit your package.

How Escaveyor costs less. Escaveyor actually costs less to purchase and install than practically any other type of lift. It requires less manpower because no manual loading or unloading is required. You also save many square feet of valuable floor space.



Free brochure. Send for free Escaveyor brochure! It tells how Escaveyor works, and how it can solve vertical material handling problems for *you!* Get your copy from Standard Conveyor Company, 308-J Second St., North St. Paul 9, Minnesota, or from your nearby Standard Conveyor sales representative.

*patent pending

Standard Conveyor

Sales and Service in over 40 Cities
Consult your Yellow Pages

7561 on Reader Service Slip.

material handling

Little vibrators get bulk all shook up

Uses: New Vibra Pak units keep granular or bulk materials moving freely in hoppers, bins and chutes, eliminating sticking, arching and bridging. Other applications include bulk feeding, screening and packing.

Features-Description: All-steel Vibra Pak comes in two series (EV and PEV), three models in each series. Series EV has a dual range for greater power applications, either one available by flicking a switch from "off" to "high" or "low."

Of special interest in this series is Model EV-1, with dimensions of only 5⅜ in. long, 2¼ in. wide and 1½ in. high. While input wattage is restricted to nine, unit operates with the standard 3600 vibrations per min.

Entirely portable, the small box-like Vibra Pak housing is attached at point where vibration is desired

Other, more powerful models are as quiet as an ordinary electric motor, and require virtually no maintenance.

Supplier: Automatic Feeder Co., 4752 W. Washington Blvd., Chicago 44, Ill.

7562 on Reader Service Slip.

Rubber-covered door absorbs truck impact

Uses: Lightweight passage door, called Duradoor, has a heavy rubber cover to absorb shock of impact normally encountered in in-plant fork-truck handling, and thus minimize chances of damage.

Features-Description: Since rubber is bonded to a core of ⅜-inch warp-resistant marine plywood, the door is protected against splintering, and the

inner core gives it rigidity.

By combining rubber-covered door with a full-length rubber hinge, more permanent, maintenance-free installation results. Repeated shocks are partly absorbed by the rubber cover, and flexibility in hinge reduces shock further.

Separate pre-drilled hinge

Rubber-covered door with rubber flexing hinge reduces shock on mounting

units are mounted on the door casing first and then door panels are clamped to the hinge. Adjustment of hinge width allows accurate fitting in slightly oversized openings.

Bottom half of the plywood core is covered with ¼ inch of rubber, top half with ⅛ inch. Leading edges have ⅜-inch thickness.

Supplier: Clark Door Co., Inc., 515 Hunterdon St., Newark 8, New Jersey.

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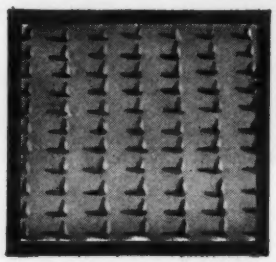
"Sorry I dropped your check in the mixer, Flanagan. Like to make a little loan? . . ."

BRAND NEW FROM SIMPLICITY!

3′ x 3′ MULTI-PURPOSE SCREEN

- pricking
- scalping
- sizing
- dewatering
- trash removal
- industrial waste removal



PRICKING PANEL INCREASES THE RATE OF BRINE OR SWEETENING PENETRATION

The Simplicity "pricking panel," shown at left, is entirely new in the industry; it provides fine mechanical perforations of fruits and vegetables and increases the rate of brine and sweetening penetration. Each and every fruit or vegetable passing over this vibrating panel receives many tiny perforations, thus enabling faster and better penetration of brine or sweetening.

The new Simplicity 3′ x 3′ Multi-Purpose Screen, with its complete versatility, offers the entire food industry a revolutionary way to cut food processing costs with higher production speeds, a more uniform product and greater flexibility for multi-purpose use. The Multi-Purpose Screen is adaptable to a number of operations and has been used successfully to size, prick, dewater, scalp and remove trash from a number of fruits and vegetables.

The screening section of the Simplicity Multi-Purpose Screen can be equipped with screen cloth of any specification and can be easily replaced with the new pricking panel. The machine itself can be constructed of mild or stainless steel and stainless steel wire cloth is normally used.

Simplicity offers expert counsel for food screening problems based on unequalled experience in screen applications. For more information on Simplicity food screening equipment, write Department 7, Simplicity Engineering Company, Durand, Michigan.

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND 6, MICHIGAN

SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A.

FOR CANADA: Simplicity Materials Handling Limited, Guelph, Ontario.

FOR EXPORT: Brown & Sites, 50 Church Street, New York 17, N. Y.

7564 on Reader Service Slip.

Conveying products at low, sub-zero temperatures... that's a job for TON-TEX Kold-Pruf BELTING

- The Ton-Tex Corporation now offers an amazing *new* Conveyor Belt for "cold-room" service where frigid, hard-freezing temperatures run far below zero. Whether the service is "totally-in" or "in-and-out" KOLD-PRUF will operate more efficiently and last longer.
- KOLD-PRUF is an ideal belt to use on low-temperature refrigeration or deep-freeze installations, and in dry ice and ice cream manufacturing plants. It is made of plies of selected cotton duck welded together with special compounds so as to withstand the rugged service demanded. Even at low temperatures, KOLD-PRUF remains unusually flexible, and the friction heat developed in operating is sufficient to maintain pulley-grip and prevent belt slippage.
- Got a "cold-room" conveyor belt problem? Without obligation let our Engineering Department explain what KOLD-PRUF BELTING can do for you.

TON-TEX CORPORATION, GRAND RAPIDS 2, MICH.
31 COLUMBUS AVENUE, ENGLEWOOD, NEW JERSEY
1180 AUZERAIS AVENUE, SAN JOSE 26, CALIFORNIA

TON-TEX CONVEYOR AND TRANSMISSION BELTING

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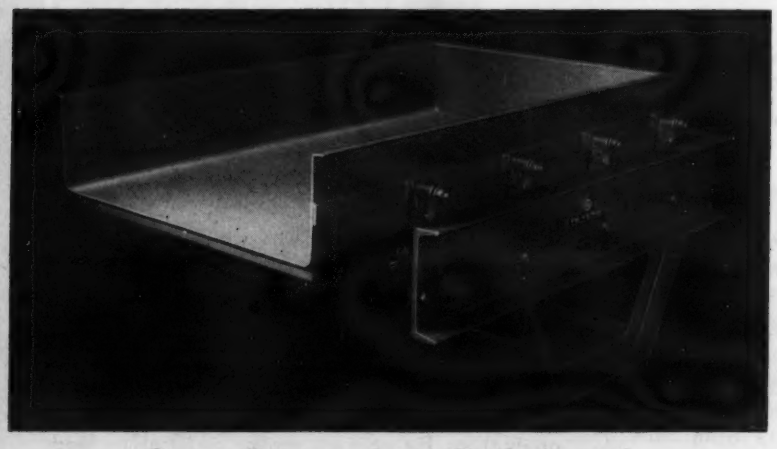

Save Space, Installation and Maintenance Costs with

AJAX VIBRATING FEEDERS

Designed for short carries between machines, conveyors and processes, Ajax Vibrating Feeders combine mechanical simplicity, absence of complicated electrical systems and low cost. They are easy to install as part of a material handling system. They can be designed into complete processing units. 3′ to 10′ lengths, widths from 6″ to 36″. *Write for information.*

AJAX® Incorporated 1920

Conveyor Division
AJAX FLEXIBLE COUPLING CO. INC.
Portage Road, Westfield, N.Y.
Representatives in Principal Cities

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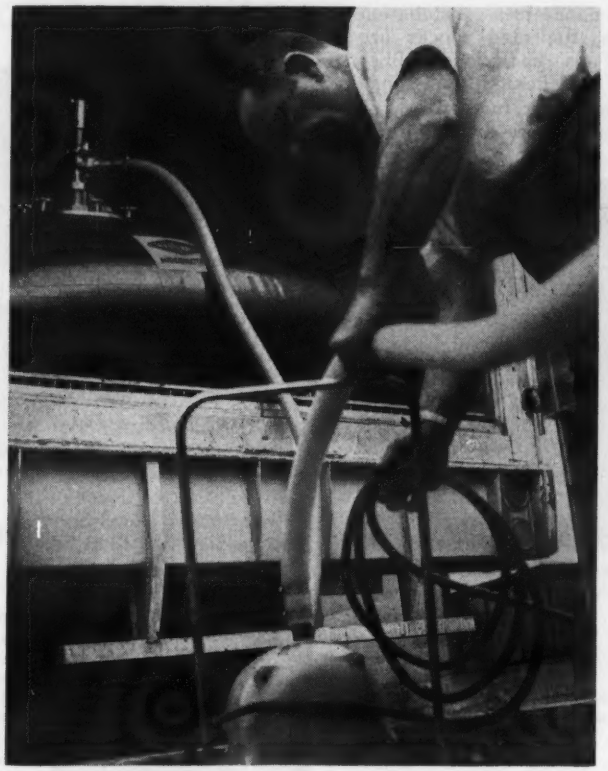
CLEAN AND QUICK . . .

At destination, juice is pumped through a sanitary hose extending from the reefer-van to . . .



For shipping fresh orange juice from Florida to Cincinnati . . .

One 4000-gal fabric tank

A YEAR AGO, FP described development of Van Tank — a new collapsible rubber container with throw-away liner that makes it possible to "Carry Almost Any Liquid in Any Type Van or Flat-bed Trailer" (Oct. 1960, pp 38-39).

Now, an actual example of in-use performance over the past year is afforded by Glacier Groves, Inc., Cincinnati.

Company formerly shipped juice from its Florida extraction plant to Cincinnati via a trailer-van having a capacity of 52 50-gal steel drums.

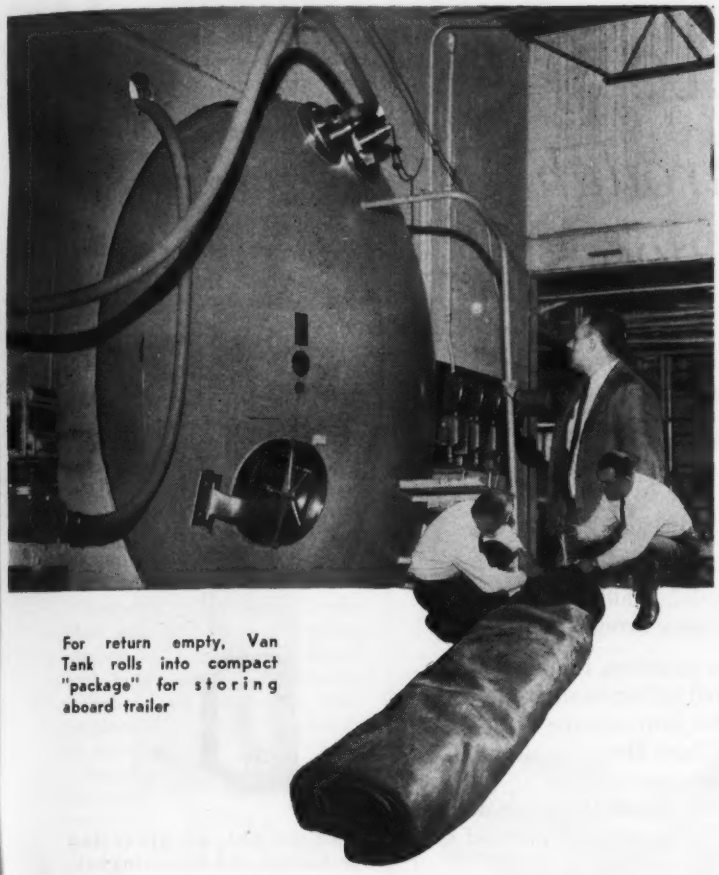
Currently, one 4000-gal (pressurized capacity) Van Tank permits a weekly northbound shipment equal to 80 full drums.

Besides greatly increasing the weekly supply of juice, the new method has vastly improved handling effort and speed at both sending and receiving ends.

Individual filling and handling of the drums in Florida is replaced with a single 45-min operation in which the tank, unrolled in the trailer body and fitted with a sanitary

INTO PRODUCTION!

. . . metering equipment in the building and into refrigerated stainless steel storage tanks



For return empty, Van Tank rolls into compact "package" for storing aboard trailer

replaces 80 50-gal drums

plastic disposable liner, is filled by pumping juice from the extractor.

The "throwaway" film liner prevents the juice from contacting inside walls of the nylon-and-rubber tank.

Once filled, tank is strapped down to prevent in-transit shifting, and the reefer-van begins its trip north.

At Cincinnati, the juice is pumped from the Van Tank into refrigerated stainless steel storage tanks, then sold to dairies, which in turn sell it through retail outlets and directly to the consumer.

Thirty-ft-long tank, weighing 453 lb with stainless steel fittings, then is folded up into a compact roll.

A new road crew returns the rolled tank to Florida in a trailer loaded with drums in which frozen concentrate (some of which is blended with the fresh juice) was shipped to Cincinnati by rail.

Supplier: Van Tanks by The Goodyear Tire & Rubber Co., 1144 E. Market St., Akron 16, Ohio.

7567 on Reader Service Slip.

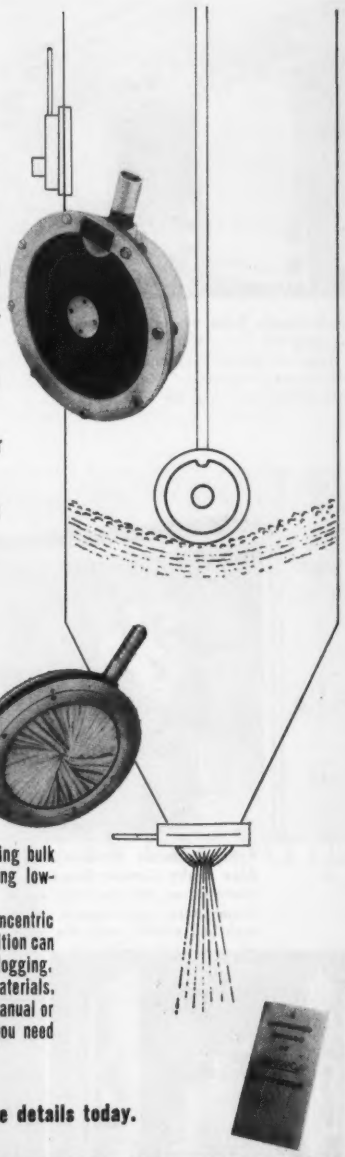
for either fine or coarse materials

SYNTRON

HOPPER or BIN CONTROLS

HOPPER LEVEL SWITCHES

automatically maintain desired minimum and maximum amounts of material in bins or hoppers at low cost.
Simple, positive diaphragm control prevents overflowing of bins, clogging and choking of conveyors, elevators, etc.
Their sturdy construction permits applications with fine powdered materials but also coarser granular materials.
Syntron Hopper Level Switches are available for interior or bin wall mounting — neoprene or stainless steel diaphragm.
If you handle bulk materials, you need Syntron Hopper Level Switches.



FLOW CONTROL VALVES

designed for the flow control and shut-off of free-flowing bulk material from bins, hoppers, and chutes—or controlling low-pressure air for treating, ventilating, and drying.
This valve features a flexible sleeve which forms concentric apertures in opening and closing. Wide-open to closed position can be accomplished under full load without jamming or clogging.
Diaphragm Fabric used depends on the characteristic of materials.
Syntron Flow Control Valves are available for either manual or motor driven operation. If you handle bulk materials, you need Syntron Flow Control Valves.

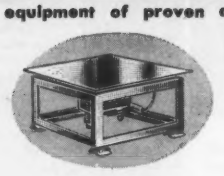
Write for complete details today.

SYNTRON

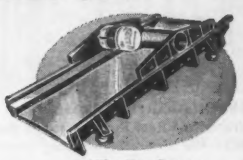
SYNTRON COMPANY

"Other Syntron equipment of proven dependable quality".

Gravimetric Feeders



Packer & Jolters



Vibrating Screens

7568 on Reader Service Slip.

America's Finest Products

pass through Clark doors

Prest-O-Matic Cold Storage Door. Keeps cold IN . . . heat OUT. Opens and closes in under 3 seconds. Air or Electric Power. Optional: POM Switch permits narrow openings for foot traffic.

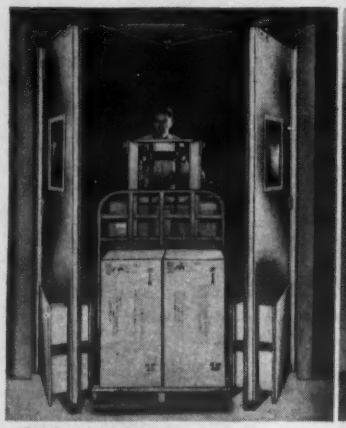
Only CLARK makes doors for *every* purpose

Prest-O-Matic Standard Industrial Door. Also Light Cooler Door. Insulated or non-insulated doors to fill specific moderate temperature requirements. Why pay for more insulation than you need? Available with 2", 3" or no insulation.

Concerned about temperature or humidity controls? Traffic jams? Lack of space around doorways?

Whatever the problem, there's a Clark insulated or non-insulated Door made to fill your specific requirements. Clark Doors "seal in" wanted temperatures in every range from 200°F to –60°F. Quick-acting Prest-O-Matic or Manually Operated Doors keep traffic *moving* without slow downs or bottlenecks.

Clark Doors come in complete, easy-to- install units. They function flawlessly on a minimum of moving parts. No cams, levers or eccentrics to go out of whack; no "time-outs" for repair. Leading Architects, General Contractors and Plant Engineers rely on Clark as their one-source supplier for all Doorway needs. Write for catalog information and Architects' drawings. You'll get them by return mail.



Shock Absorber Door. Urethane-filled Bumper takes the shock, NOT the door. Self-closing impact door keeps traffic moving. Rigid, lightweight, with flexible hinges.

Clark Durador. Rubber-armored, rubber-hinged. Won't warp, wear or corrode. Takes fork truck pounding in stride.

CLARK DOOR COMPANY, INC. since 1878

518 Hunterdon Street
Newark 8, New Jersey

"See us at Booths #1351 & 1355, Baking Industry Exposition"

7569 on Reader Service Slip.

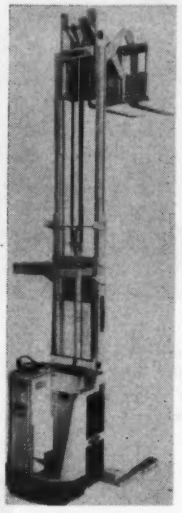
material handling

New Developments in lift trucks

Among 40 changes made in new-model narrow-aisle electric "Reach Fork" truck are:

New high-pressure hydraulic system that allows smaller rams to be used, and increases lift speeds;

Compact nested masts and carriage section, reducing



dead-weight of elevating mechanism and improving battery performance;

Hand-guard, recessed steering wheel, new overhead guard with safety-glass "picture window" improve operating safety;

Color-coded wiring system and easy accessibility to all parts facilitate maintenance;

Battery compartment now has ball-bearing rollers, plus right and left side battery-removal facilities.

Floor-protective polyurethane wheels are standard equipment.

Supplier: The Raymond Corp., 131 Madison St., Greene, New York.

7570 on Reader Service Slip.

Products & Packages pages 8, 9, 10, 11

Stand-up, center-control . . .

electric fork trucks have been introduced in new "JC" Series in 2000-, 2500- and 3000-lb capacities.

All models feature choice of standard or full free mast, two separate braking systems and controlled castor, wide-tread steering axle.

Removal of a single cover plate exposes drive and pump motors, hydraulic pump, travel and hoist contactors, valves, switches and hydraulic connections for quick inspection or servicing.

Supplier: Mercury Manufacturing Co., Subsidiary of Pettibone Mulliken Corp., 4700 W. Division St., Chicago 51, Ill.

7571 on Reader Service Slip.

Vacuum "breakthrough" . . .

uses the internal vacuum principle in which air is exhausted from a thin paper or plastic wrapping, drawing the cases or bags being lifted tightly together, and locking them securely to face plate

Speed up your production by using the

Photo courtesy Rheem Manufacturing, Container Division

BALCRANK STAINLESS STEEL

air-operated Reciprocating Transfer Pump

Picture shows Original Crispy Co., Bronx, New York, transferring Pizza Sauce using BALCRANK P-161 STAINLESS STEEL PUMP from Sterilpac Container manufactured by Rheem Mfg. Company, Linden, New Jersey.

After removing drum head, using a Wizzard Drum Cover Opener, the 55 gallon container is pumped empty in 3½ minutes.

BALCRANK MODEL P-161 STAINLESS STEEL Pump with Drum Clamp transfers all concentrates of Tomato Paste, 26% to 36%, Peach and Pear Concentrates, Pizza Sauce, Ketchup, All Fruit Juices, Vegetable Oils and liquid food products.

Pump is light in weight, will out-perform conventional method of emptying #10 cans by two-to-one production ratio.

Distributors wanted.

Wire or write Balcrank Inc., Cincinnati 9, Ohio, for literature and prices.

BALCRANK, inc. 10 Disney Street, Cincinnati 9, Ohio

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SEND FOR CATALOG 51-55

DURANT COUNTERS register accurate count of every unit processed . . . eliminate profit-eating losses . . . insure economical plant operation and maximum use of man hours.

DURANT MANUFACTURING CO.

1951 N. Buffum St. Milwaukee 1, Wis.

51 Thurbers Ave. Providence 5, R. I.

DURANT

COUNTING INSTRUMENTS

REPRESENTATIVES IN ALL PRINCIPAL CITIES

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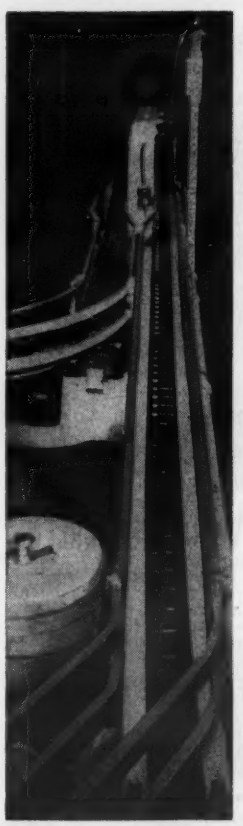


no lubrication required with

NYLITE Wear Strips

first and only self-locking expansion-type wear strip.

- no grease, no soap, no soiled containers, minimum cost of maintenance
- works equally well with metal or Delrin chain
- longer life to conveyors and chains
- easily installed by unskilled labor
- pays for itself in a few months

If you think of your product and your pocketbook . . . Think of *NYLITE* by . . .

FENCO, INC.

125 North Racine Ave., Chicago 7, Illinois.

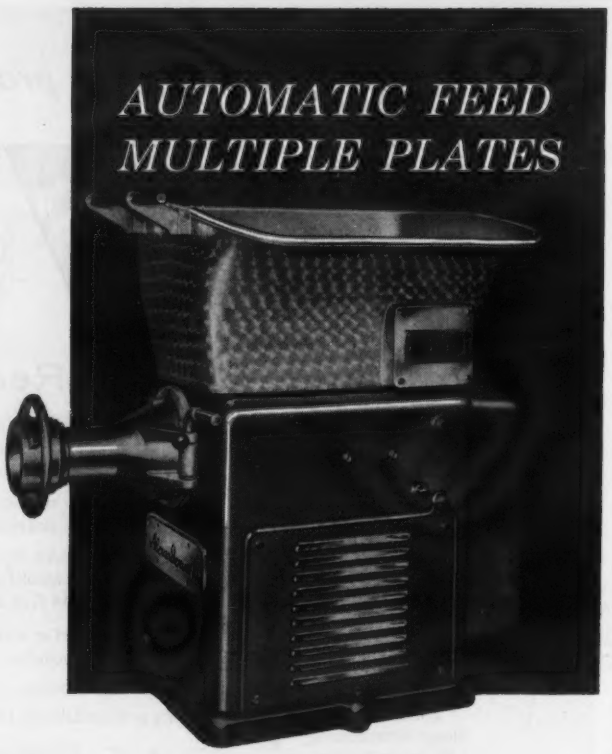
Write for descriptive booklet.

7574 on Reader Service Slip.

New KOCH Grinders give higher productivity

A rugged new workhorse of a grinder that cuts more meat *per operator hour*. The hopper, for example, empties itself. At the bottom of the hopper is a low-speed conveyor that automatically engages the meat and delivers it to the high-speed feed worm at just the correct rate. Knives and plates are kept supplied with meat and cannot run empty or overheat. Three plates and two double-edge knives do pre-cutting, coarse, and fine grinding. Meat is reduced gently and by stages without mashing or overheating. Cuts as fine as 1/8 or 1/16-in. plate in one operation. Write for Koch Circular AW 160. No obligation.

Financing and rental plans also available



KOCH Supplies Inc.

1411 West 29 St., Kansas City 8, Mo., U.S.A. / PLaza 3-2150 / TWX: KC 225 / CABLE: KOCHEQUIP KANSASCITY

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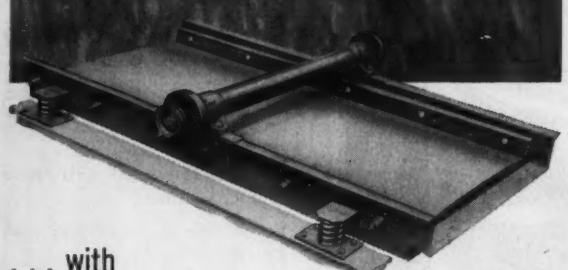
SALVAGE SOLIDS
at high speed, low cost



. . . with

LINK-BELT "NRM" LIQUID VIBRATING SCREENS

Throughout the food industry, Link-Belt "NRM" screens are profitably solving liquid waste problems. They reclaim valuable solids . . . clean up waste water for reuse . . . help reduce stream pollution. High-energy vibration assures fast, effective separation of solids from large volumes of water *without blinding*. For full details, write for Book 2777. 15.645

LINK-BELT

LIQUID VIBRATING SCREENS

LINK-BELT COMPANY: Prudential Plaza, Chicago 1, Ill.

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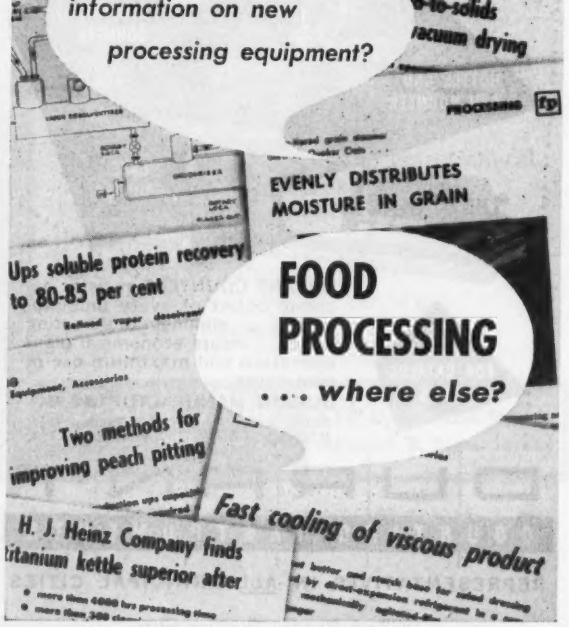

Minces meat for better, faster sausage making
"Cuts" trimming costs by 25 per cent
Where do you find information on new processing equipment?
EVENLY DISTRIBUTES MOISTURE IN GRAIN
Ups soluble protein recovery to 80-85 per cent
FOOD PROCESSING
. . . where else?
Two methods for improving peach pitting
Fast cooling of viscous product
H. J. Heinz Company finds titanium kettle superior after

material handling

of lift truck attachment.

As result, new approach is not restricted as were previous lift truck attachments and oversize suction cups to nonporous materials of limited size and weight. Device handles a remarkable assortment of loads — including cased and bagged items, and even multiple-package loads. No other support is needed to move unit loads.

Experimental face plates developed so far include a flat plate that can be positioned vertically and horizontally, a special plate for handling cartoned appliances and a paper-roll face plate. Light and easily detachable, the face plates can be switched in seconds by operator, without leaving his seat.

Supplier: Hyster Company, P. O. Box 4318, Portland 8, Ore.

7577 on Reader Service Slip.

How portable pneumatic system transfers grain

The mobility and versatility achieved in pneumatically transferring grain with a portable Airveyor transfer unit is subject of new four-pg Bul A-20, from Fuller Co.

Six illustrations dramatize typical applications: car to vertical silos, ship to shore, flat-bottom warehouse to car, truck to car, vertical silo to car and car to flat-bottom warehouse.

Also included are a complete diagram of the unit.

7578 on Reader Service Slip.

Describes narrow- aisle handling equipment line

New 16-pg Catalog 2365 LK, "Narrow Aisle Handling Equipment," describes The Raymond Corporation's complete line of narrow-aisle electric trucks and hydraulic hand pallet trucks.

On-the-job photos show a variety of applications for the space-saving equipment. Separate pages illustrate the various models, and give specification information.

7579 on Reader Service Slip.

plants, companies, personalities

Good Humor Corporation

a division of Thomas J. Lipton, Inc., has as new general manager and operating head Mortimer D.

Moriarty, Good Humor administrative vice president since 1957.

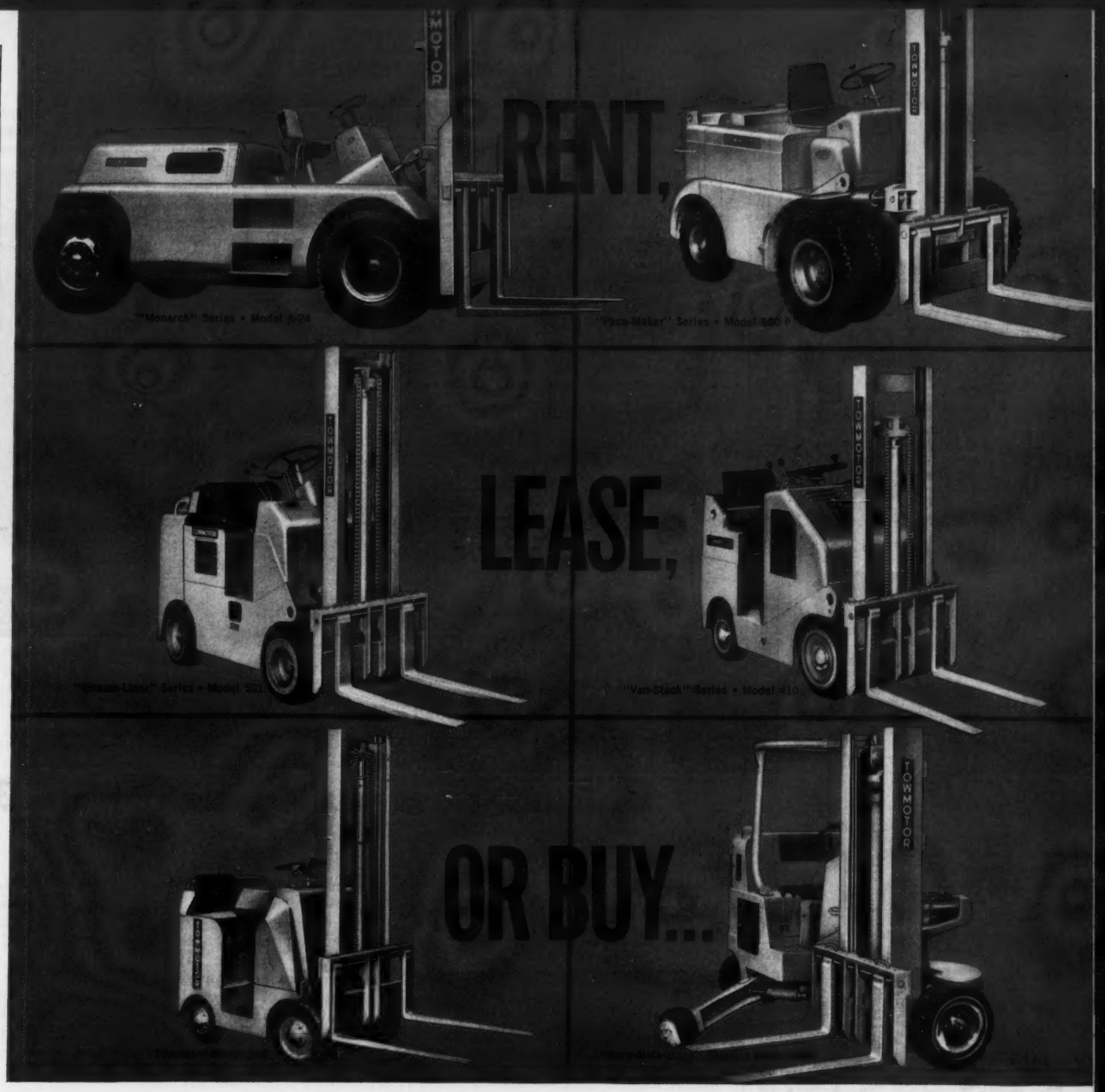
USDA's Southern Utilization Research and Development Division

New Orleans, has promoted E. L. Patton to assistant director for industrial development. He also will continue as chief of the Division's Engineering and Development Laboratory until a successor is appointed. Primary purpose of his new post is to increase use of agricultural products by encouraging industry to adopt research findings more quickly.

A. E. Staley Manufacturing Company

Decatur, Ill., announces four supervisory promotions in its Research and Development division: Dr. H. M. Walton to research associate; Dr. John A Wagoner to group leader, supervising the physical chemistry group; Dr. R. M. Powers to head of the newly created laboratory of instrumental analysis; K. M. Brobst to head of the analytical laboratory.

For more information on product at right, circle 7586 see information request blank opposite last page.



...ANY TOWMOTOR-GERLINGER TRUCK

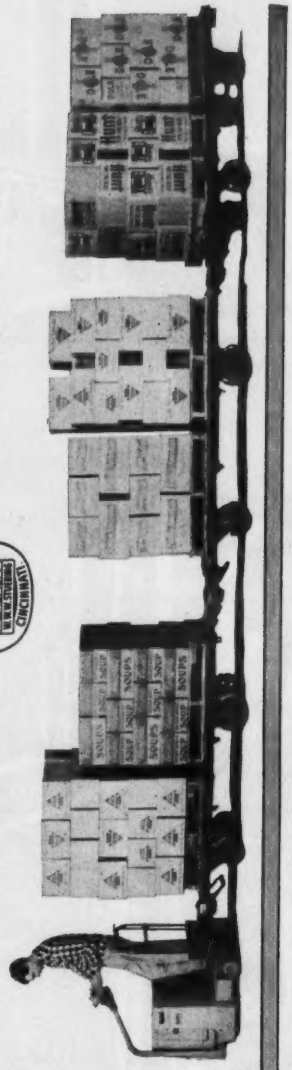
...OR ANY CARRIER

TOWMOTOR'S ON THE MOVE—saving money, manhours and maintenance for fork lift truck users—through four special Towmotor Finance Plans. (1) Time Payment Plan enables you to buy new equipment through monthly payments tailored to specific needs. (2) Leasing Plan enables you to lease new equipment for periods up to 5 years with renewal option. (3) Leasing Plan with Purchase Option at end of lease period. (4) Renting new equipment for a period of several months or as long as equipment is needed. Towmotor supervised maintenance can be included on all Towmotor fork lift trucks —made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

TOWMOTOR -GERLINGER*
THE ONE-MAN-GANG

*Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

Gerlinger Material Carrier • Model 40-SH

modernize with
Hydro*Lectric*
A GREAT NAME IN TRACTORS
This powerful Hydroelectric Tractor hauls one or multiple units with speed, safety and ease of operation. Features the exclusive DYNA-DUAL POWER UNIT. Power enough to pull loads of 6000 lbs. or more at low cost.
LIFT TRUCKS, Inc. CINCINNATI 14, OHIO
• Two driving wheels instead of one
• Sealed alloy gears instead of chains
• 100% more steering ease with two wheel drive
• Power unit removal complete in 20 minutes

7587 on Reader Service Slip.

A similar car to the soon-to-be-produced AirJet here unloads fly ash. Pneumatic line "I" is the 3-in.-diam air inlet line; line "D" is the 4-in.-diam product-discharge line

With a hose connection and a supply of compressed air, one man can . . .

Unload new bulk rail car in 30 min

PNEUMATIC TANK-TYPE rail car carries 2400 cu ft of dry material, discharges directly into a plant, storage bin or highway vehicle and can be unloaded by one man in 30 min — about one-third the time needed for several men to unload one conventional covered hopper car.

Unloading the new AirJet car requires only a hose connection to the car and a supply of compressed air, thus eliminating need for any intermediate transfer systems between car and storage bins.

Delivery of material from the rail car to any point in the plant is possible, with conveying lines easy to curve around corners and beams, and traverse various levels. Little, if any, modification of present plant structures is necessary.

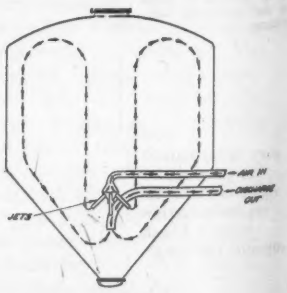
Although these are not the limits, the system has conveyed some materials up to 40 cu ft per min at distances of 1400 ft, with 100-ft rise.

To date, it has test-handled products varying in density from 16 to 168 lb per cu ft,

AirJet tank principle is the same as used for years in conveying liquids by use of air pressure. In such cases, compressed air or other gas drives the liquid out a discharge located at or near bottom of the closed container.

However, with granular materials, it first is necessary to fluidize the material. This is accomplished in a unique manner — similar to a dust-storm, where the wind picks up and holds in suspension sand particles from the ground.

The discharge line is closed, and air is pumped into the tank — fluidizing the material. Over-all effect is to reduce the bulk density. Then, by opening the discharge line and maintaining air pressure in the tank, the material will empty quickly.



and including barite, bentonite, lime, sand, pelletized carbon black, crushed carbon coke, calcined petroleum coke and fly ash.

Tanks may be coated on inside to accommodate foodstuffs, both granular — such as wheat, oats, corn, flour, salt and dextrose sugar — and liquids.

AirJet tank-type rail car, a joint development of Pullman Incorporated, Chicago, Ill., and Halliburton Co., Duncan, Okla., will be offered for sale or lease.
For sale: Pullman-Standard, Division of Pullman Incorporated, 200 S. Michigan Ave., Chicago 4, Ill.
7588 on Reader Service Slip.
For lease: Transport Leasing Co., a subsidiary of Pullman Incorporated, 200 S. Michigan Ave., Chicago 4, Ill.
7589 on Reader Service Slip.

Tanks are virtually self-cleaning. This reduces materials waste and the possibility of contaminating subsequent loads.

Aeration jet system is patented. The tanks contain no bearings or moving parts to wear out. There is virtually no friction wear, even from abrasive materials — a big advantage over bucket elevators, screw conveyors and augers.

Tanks are ASME-coded at 40 psi, and unloading is accomplished by pressures in that range and a relatively low volume of air. END

"While you were in there, Mr. Soesbee, did you taste it to see if the formula was about right?"

there's only ***one*** *company you can get* ***any*** *kind of metal conveyor belt from . . .*

USS Cyclone

It's true. USS Cyclone makes more kinds of metal conveyor belts than anyone else in the industry. Flexigrid, Flat wire or Woven wire, Cyclone will engineer it to fit your particular set of problems in your processing system. And then service it. We have 69 Cyclone Sales Offices across the country so you can get faster service from us than from anyone . . . no matter where you are. The next time you need a conveyor belt recommendation, call USS Cyclone. We're in the Yellow Pages under "Conveyor Belts—Metal."

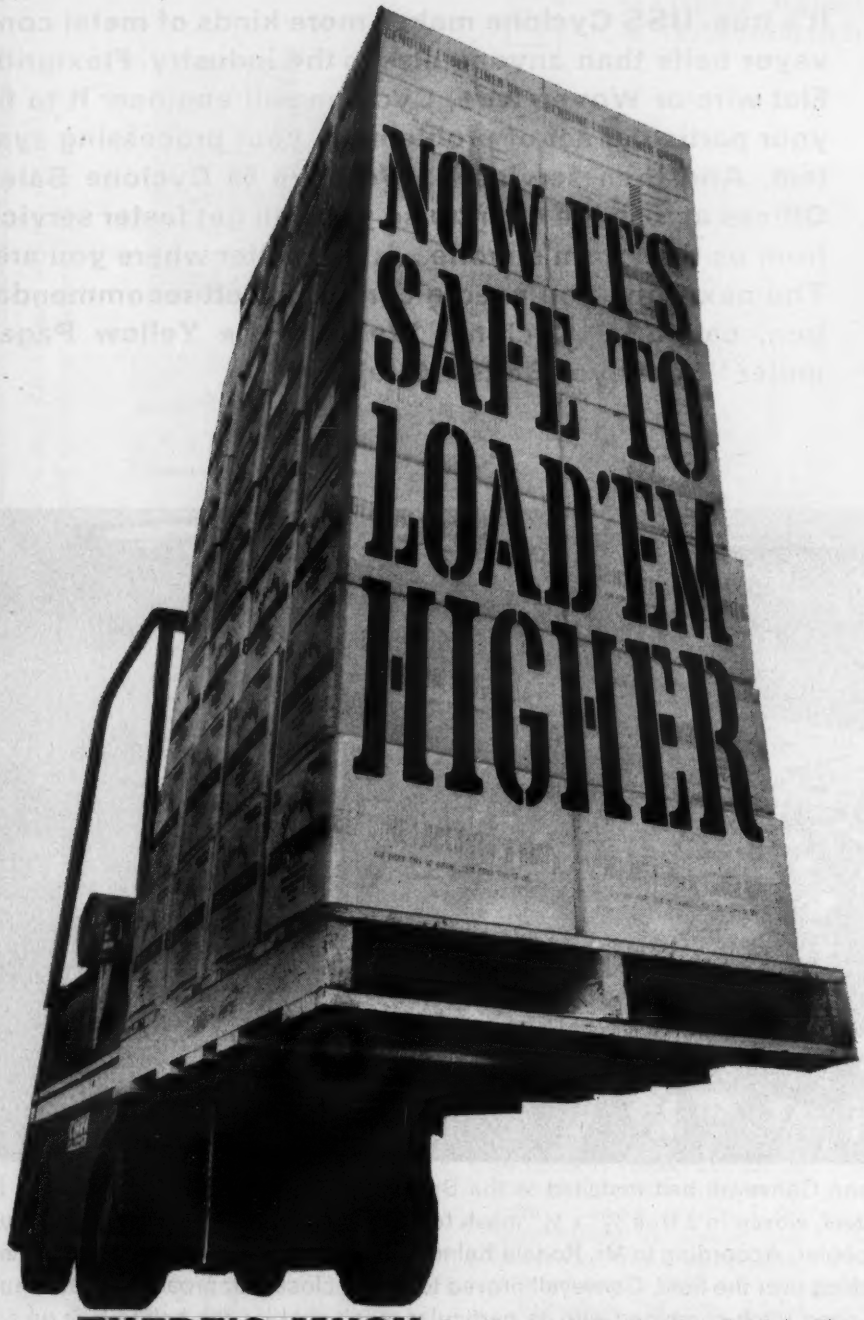
This is a new USS Cyclone Conveyall belt installed in the Brooklyn plant of Dietetic Foods, Inc. It's 18-8 Type 302 Stainless Steel, woven in a true ½" x ½" mesh to carry glass-packaged products through a 57-foot pasteurizer and cooler. According to Mr. Ronald Kalmore, Dietetic's vice president and general sales manager, "After looking over the field, Conveyall proved to be the closest approach to ideal equipment for us." Conveyall's short pitch combined with its particular mesh enables the belt to turn on substantially smaller feed and discharge rollers without developing a chordal action which could tip over jars with small-diameter bases. And the small rollers made it possible to eliminate "dead plates" at both ends of the unit which enabled Dietetic to use conveyor-to-conveyor transfer. This eliminated time lag between bottles and prevents direct glass-to-glass contact, drastically reducing breakage potential.

This mark tells you a product is made of modern, dependable Steel.

USS American Steel and Wire Division of United States Steel

Cyclone Sales Offices Coast to Coast

7590 on Reader Service Slip.



THERE'S MUCH LESS CHANCE OF SLIPPING WHEN CARTONS ARE FRICTIONIZED WITH DU PONT LUDOX®

Coatings of "Ludox" colloidal silica give a carton millions of invisible grip points. So you can load fork lifts higher—work faster. Breakage is cut way down. Remember you can store pallet loads higher, too. ■ A growing number of box suppliers offer this anti-slip treatment. So next time you order, specify cartons frictionized with "Ludox"—or write direct to Du Pont for free booklet and list of suppliers of treated boxes, 2545 FP Nemours Bldg., Wilmington 98, Del.

LUDOX® DU PONT
colloidal silica
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

7591 on Reader Service Slip.

When to consider 'special' industrial trucks?

Twelve-pg engineering case book, by The Elwell-Parket Electric Co., discusses role of "special" electric industrial trucks (those which have undergone basic modification other than use of a simple attachment) in diverse operations.

Appearing as an edition of ELPAR LIFT, the company's periodic material-handling magazine, the case book explains the place of the "special" in today's material handling operations, describes jobs best suited to special models and analyzes economics of the units.

A check list included aids the potential user in considering specials as the solution to his problem application.

The brochure also features a documentary showing how a major West Coast terminal warehouse operator uses special trucks with dramatic results.

7592 on Reader Service Slip.

New live-roller conveyor keeps pressure off cartons

Uses only ½ the hp of equal capacity live-roller units

New belt-driven live-roller conveyor reduces accumulation pressure on crushable cartoned commodities to a

With conveyor running at 20 fpm, holding back 33-lb cartons does not break raw egg positioned between cartons

mere 3½ per cent of commodity weight.

Unit handles a broad range of packages of mixed dimensions and weights without buckling the line of accumu-

lated packages — yet, no gaps are created, and there is no lagging. Entire line moves forward at the same instant.

Belt-tracking problems are practically eliminated, lowering maintenance costs. Belt actuators always provide correct, uniform belt pressure against the rollers, without manual adjustment.

Conveyor needs only 50 per cent of the horsepower normally needed for equivalent-capacity, accumulating live-roller conveyors. Cost is about same as for conventional live-roller belt-driven conveyor of same capacity and dimensions.

At 30 fpm, even badly staggered cartons weighing up to 35 lb each can be accumulated without jackknifing

Widths, between frames, range from 10½ to 38½ in., and include 14½, 16½, 20½, 26½ and 32½ in.

Supplier: Standard Conveyor Co., 330 Second St. N.W., North St. Paul 9, Minn.

7593 on Reader Service Slip.

Presents advantages of all-plastic conveyor belts

How a surface of Du Pont Mylar polyester laminated to Firestone vinyl construction enables Permagloss conveyor belting to provide superior service in various food-conveying applications is explained in four-pg bulletin

Cambridge Bethanized Steel Metal-Mesh Belt*

*Bethlehem Steel's electrolytic process that binds a coating of ductile zinc to steel wire.

COOLS DOWN HOT FREEZING PROBLEMS

A belt can take a real beating in a freezing tunnel, unless—like a Cambridge Bethanized Steel Belt—it can resist sub-zero temperatures, rusting, corrosion and even abrasion from metal cans.

A Cambridge Bethanized Steel Belt has the ability to take this kind of rough treatment, and, equally important, protects foods because it is non-absorptive, easily cleaned. This is why Cambridge Bethanized Steel Belts are used in freezing, cooling, blanching, washing and other operations.

There is a complete line of Cambridge Belts in special and standard metals and alloys to meet your specific requirements—custom-built in any weave to insure the most efficient processing.

Experienced Cambridge Field Engineers—experts in their field—are available to discuss your needs and help you select the belt best suited to your operations. Or, they can offer you sound advice on the installation, operation and maintenance of your Cambridge Belts. Talk to your Cambridge man soon. He's listed in the Yellow Pages under "Belting, Mechanical". Or, write for free 130-page reference manual.

The Cambridge Wire Cloth Co.

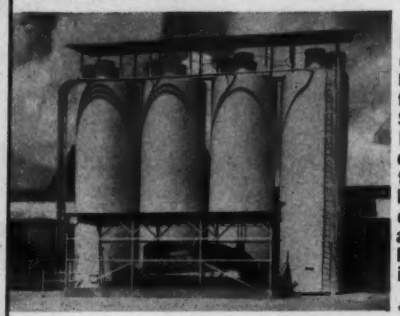
DEPARTMENT H • CAMBRIDGE 9, MARYLAND

Manufacturers of Metal-Mesh Conveyor Belts, Flat Wire Conveyor Belts, Wire Cloth, Wire Cloth Fabrications, Gripper® Metal-Mesh Slings

7594 on Reader Service Slip.

SEMCO Complete Conveying Systems can increase your profits. They handle material faster—more economically—safeguard cleanliness. Let a SEMCO engineer show you the advantages of the most modern equipment for your plant.

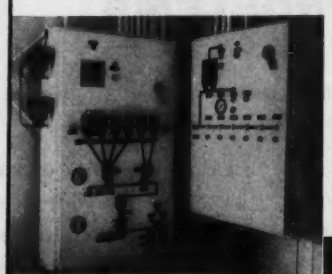
A FEW VIEWS OF TYPICAL INSTALLATIONS



Elevation view of four 110,000# Capacity Vertical Airslide* Storage Bins. Bin Skirts extended to foundation, Breather Units on top hooded, and Weather-Protected Roof included.

*Fuller Co. Airslide

Side and end view of 4 SEMCO 1000-cwt. Horizontal Airslide Storage Bins. Each Bin has 4 Airslide Hoppers feeding a Conveying Valve. View shows Bin End Section Ports, Access Hatches, Ladders, Loading Lines, Sight Glasses, Line Couplings, and 2 Four-Way Manual Line Switches.



SEMCO Bulk System Control Panel including Main Disconnect Switch, Alarm Horn, Pressure Switches, Flush-Mounted Pressure Gauges, and graphic display of operating conditions.

A 5000# Capacity Flour Use Bin complete with Vibrator and Rotary Valve Unit. View also shows Sifter and System Control Panel.

Whether you are interested in a complete conveying system or a money-and-time-saving component, SEMCO can help you. Write, wire or phone for the name of your nearest representative.

SYSTEMS ENGINEERING & MANUFACTURING CO., INC
P.O. BOX 7634 6330 WASHINGTON AVENUE HOUSTON 7, TEXAS

7595 on Reader Service Slip.

material handling

offered by Voss Belting & Specialty Co.

Among the more important advantages concisely described are: longer life, high tensile strength, chemical resistance, dimensional stability, lasting flexibility, economy and extra-sanitary super-gloss surface.

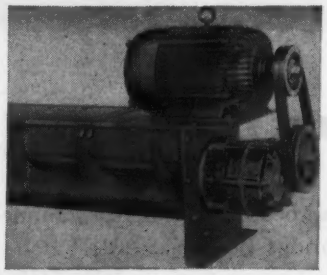
Also included are technical specifications.

7596 on Reader Service Slip.

Low-hp drives for short screw-conveyor flights

Two-pg Bul 601, by Dodge Manufacturing Co., details V-belt drive-center distances, allowable speeds and prices for compact new Series 100 screw-conveyor drives.

Two speed ratios are offered: 8:1 for up to 6 hp at 225 rpm, and 18:1 for up to 3.8 hp at 100 rpm. Any desired output



Unit (lower right) consists of double-reduction speed reducer with packing gland and driving shaft; mounts on a trough end via three bolts in reducer flange

speed may be obtained by selecting the correct V-belt drive to transmit power from motor.

Drives are designed to triple-seal the reducer unit against invasion by materials being conveyed. Packing gland is adjustable from outside, takes standard packing and may be inspected by sight.

Slotted holes in flange of reducer permit unit to be rotated for quick and easy adjustment of V-belt drive center distances.

Heavy-duty tapered roller bearings in reducer take thrust from the screw in either direction.

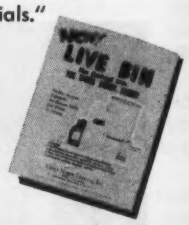
7597 on Reader Service Slip.

A PARTIAL LIST OF MATERIALS BEING HANDLED BY VIBRA SCREW FEEDERS

Abrasives
Activated carbon
Alumina
Aluminum powder
Carbon black
Cement
Clay
Cocoa
Dry potato granules
Filter aid
Iron powder
Lime
Milk powder
Plastic resins
Sand
Sawdust
Silica flour
Spices
Starch
Talc
Titanium dioxide
Zinc stearate

TECHNICAL DATA AVAILABLE ON THE VIBRA SCREW® FEEDER with LIVE BIN

Facts and figures on the feeding and metering of more than 500 chemical, food, plastic and other dry materials are listed in this eight page technical bulletin entitled "Tested Performance of Vibra Screw Feeders on Various Materials." Ask for your free copy of Bulletin TP-1.



VIBRA SCREW® FEEDERS, INC.
156 Huron Avenue, Clifton, New Jersey
PRescott 3-6240 vs/z

7598 on Reader Service Slip.

1400 Cans a Minute

Long lasting, non-lubricated Nylite "D" conveyor chain. New "Delrin" conveyor chain now called Nylite "D" offers the following advantages:

- no lubrication
- longer life
- lower original and maintenance costs
- lower coefficient of friction
- less noise
- more sanitary advantages
- equally good for plastic containers, bottles and cans.
- numerous safety factors
- higher speed

These advantages were proven through rigid comparative tests with metal chains for the past three years.

Now in stock: 3" — 3¼" — 4" — 4½" — 6" — 7½" widths

Write today for new pamphlet

FENCO, INC. | 125 N. Racine Ave. Chicago 7, Illinois

7599 on Reader Service Slip.

plants, companies, personalities

H. J. Heinz Company

has promoted Lila Jones to manager of home economics. She joined Heinz as head of the Home Economics Department in 1950.

Lakeland Bakeries, Inc.

St. Cloud, Minn., and Pan-O-Gold Baking Co., Pipestone, Minn., and Fort Dodge, Iowa, two prominent Midwest independent bakeries, have merged. The respective presidents will continue to head the separate operations, and each will become a director on the other company's board of directors.

Foremost Dairies, Inc.

San Francisco, enlarged international operations with the recent opening in Manila of a franchised Golden State Co., Inc., dairy plant.

Chr. Hansen's Laboratory

Milwaukee, has appointed Dr. R. L. Sellars research manager for the recently completed Dairy Culture Center. Don Eakle, director of the Culture Department, will coordinate research, production and extension service. Gordon Sanders will be in charge of Dri-Vac lactic culture and cultured products production.

The Squirt Co.

Sherman Oaks, Calif., has promoted Ernest L. Lowry from director of franchise operations to executive vice president. Company has over 385 domestic and foreign franchises.

For more information on product at right, circle 7600 see information request blank opposite last page.

TURKEYS TRAVEL TO FREEZING ROOM ON SPIRAFLEX WHERE THEY FLY FROM THE CEILING TO DOUBLE STORAGE SPACE

Cherry-Burrell magic makes frozen turkeys fly

The wizardry of Cherry-Burrell engineers was recently challenged by Mr. Ed Vines, of Vines Poultry Company, Osgood, Indiana. He needed a continuous method of freezing his turkeys, but had limited floor space and wanted to do it economically. He investigated a number of possible methods. But they all were either too costly, or took too much room, or both. That's when Ed Vines talked turkey with Cherry-Burrell.

To solve the problem and increase his profits, Cherry-Burrell engineers put frozen birds on the wing. They recommended a Cherry-Burrell Spiraflex overhead conveying system on which to fly his turkeys through his freezing room. This gave him two rooms in one: a freezing tunnel on the ceiling; a holding room on the floor. And he needed only one refrigeration system for both. Freezing room labor, and of course, labor costs were eliminated. The more efficient use of existing equipment spread refrigeration costs over a broader base; made this money work twice as hard. And the over-all plant output was increased. Now this turkey processor's birds are quickly frozen, white, plump and profitable.

Highly trained technicians will test *your* product without obligation in a Cherry-Burrell laboratory. They will show you how Cherry-Burrell food processing equipment can help you improve your operation and profit position. Your specialists are invited to participate in the testing.

Call or write Cherry-Burrell today.

A COMPLETE LINE OF CONVEYING EQUIPMENT
Spiraflex, Wheel, Belt and Roller conveying equipment types are available from Cherry-Burrell. Write for complete details.

CHERRY-BURRELL CORPORATION
CEDAR RAPIDS, IOWA

LA PORTE

FLEXIBLE STEEL CONVEYOR BELTS

Handle raw, processed and packaged food safely and economically

THE flexible open-mesh design of LaPorte Belts offers definite money-saving advantages to food manufacturers. For example, fruits and vegetables cannot roll off. Sorting, grading, washing, canning, dehydrating and freezing are speeded up. The impenetrable surface, that resists oils, grease and detergents, safeguards products against off-flavors and odors. In addition, these temperature-proof belts maintain a perfectly flat surface on filling and sealing tables. Easily sterilized with a steam gun while in motion.

If you process, package, store or ship food, it will pay you to use LaPorte Belts. Available in ½" x 1", or 1" x 1" in any length and practically any width. Ask your mill supplier or mail coupon for illustrated literature and prices.

MAIL COUPON TODAY

LA PORTE MAT & MFG. CO.
Box 124 Dept. A
La Porte, Indiana

Please send free literature on your Conveyor Belt.

NAME_____

ADDRESS_____

CITY_____ STATE_____

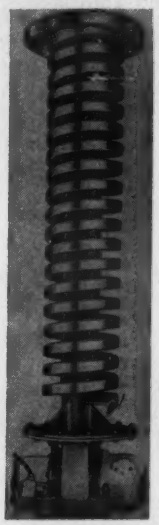
7601 on Reader Service Slip.

material handling

High-capacity feed spirals use rotary-vibrator drive

Longer, more-powerful stroke of rotary vibrator drive unit allows it to handle larger, higher spirals at greater bulk-material capacities than the electromagnetic type of drive.

Three new spiral feeder models with these drive units have spiral heights ranging from 3½ to 20 ft. Feeders operate on 230 or 460 v, 60 cy, 3-phase a-c.



Maximum exposed area of spiral ramp permits economical, efficient cooling by convection or forced air in minimum floor area

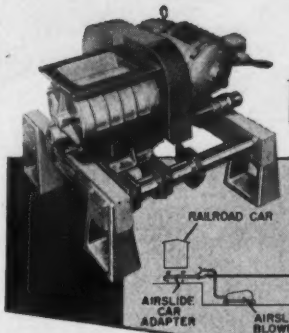
Supplier: Syntron Company, Lexington Ave., Homer City, Pa.

7602 on Reader Service Slip.

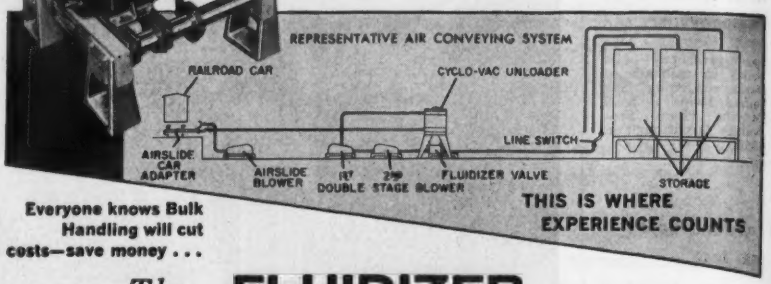
Describes precision of new bulk-weigh systems

Net-weight loading of carriers; immediate printed weight records; preset draft counters which enable operators to predetermine number of drafts processed in sequence; net weight totals and sub-totals available at touch of a button on the remotely located control consoles — these are some of advantages of "Automatic Bulk Weighing Systems," as described in Toledo Scales' Bul 2490a.

Operation of the systems,



THINKING ABOUT BULK HANDLING?



Everyone knows Bulk Handling will cut costs—save money . . .

THIS IS WHERE EXPERIENCE COUNTS

The important point is:

FLUIDIZER CAN DO IT *BETTER*... BECAUSE FLUIDIZER HAS THE *EXPERIENCE*

Fluidizer pioneered in this area and knows what will work and how to pinpoint capabilities and limitations. You don't pay the penalty for costly guesswork. Experienced Fluidizer engineers create unique and imaginative approaches to specific customer requirements. Successful performance proved by repeat purchases. Call us for the *facts*.

Proven record for conveying: Sugar (including powdered) Starch, Flour, Dried Milk, Chemicals, Plastics, Clays, etc.

Fluidizer®

made by FLUIDIZER DIVISION OF DAFFIN CORPORATION
Hopkins, Minnesota • Phone West 8-7651

AIR CONVEYING SYSTEMS . . . *"most advanced in modern Air Handling"*.

7603 on Reader Service Slip.

INCREASE PROFITS!

CUT HANDLING COSTS!

PUT YOUR FROZEN FOOD PROCESSING ON WHEELS

Midwest ROLL-AWAY TRUCKS

TRUCK SIZE 19¼" x 29" x 55"

. . . roll easily on wide tread 4" composition wheels.

. . . speed movement of packaged meats and other foods from counter or into cold room for storage.

. . . save time, plus labor and food handling expense.

. . . hold 7 large trays or 14 half-size trays, electro-plated to prevent discoloring of packages.

. . . tray sizes: 17" x 28½" x 4", 17" x 28½" x 5" or 17" x 14½" x 3½". Every joint welded . . . no open ends to catch on trucks, doors or other trays.

WRITE FOR CATALOG AND PRICES

MIDWEST METAL STAMPING CO. • Phone 60 • KELLOGG, IOWA

7604 on Reader Service Slip.

accurate to 0.1 per cent, is graphically illustrated with an easy-to-understand sequence drawing.

Bulk-weighing models are listed, along with their capacities. Also tabulated are the small space requirements needed for the systems.

7605 on Reader Service Slip.

Unloading bulk cars with portable pneumatic unit

New Sprout-Waldron Bul 126-C describes and illustrates the easy-handling Portaflow portable pneumatic unloader — designed for unloading Airslide bulk cars in a dustless, leak-proof operation.

7606 on Reader Service Slip.

Moves bulk powders — no contamination, no dust

Features: Completely enclosed, automatically lubricated feeder-hopper combination will operate while submerged in a liquid.

Flow of up to 6000 lb of granulars per hr is accurately

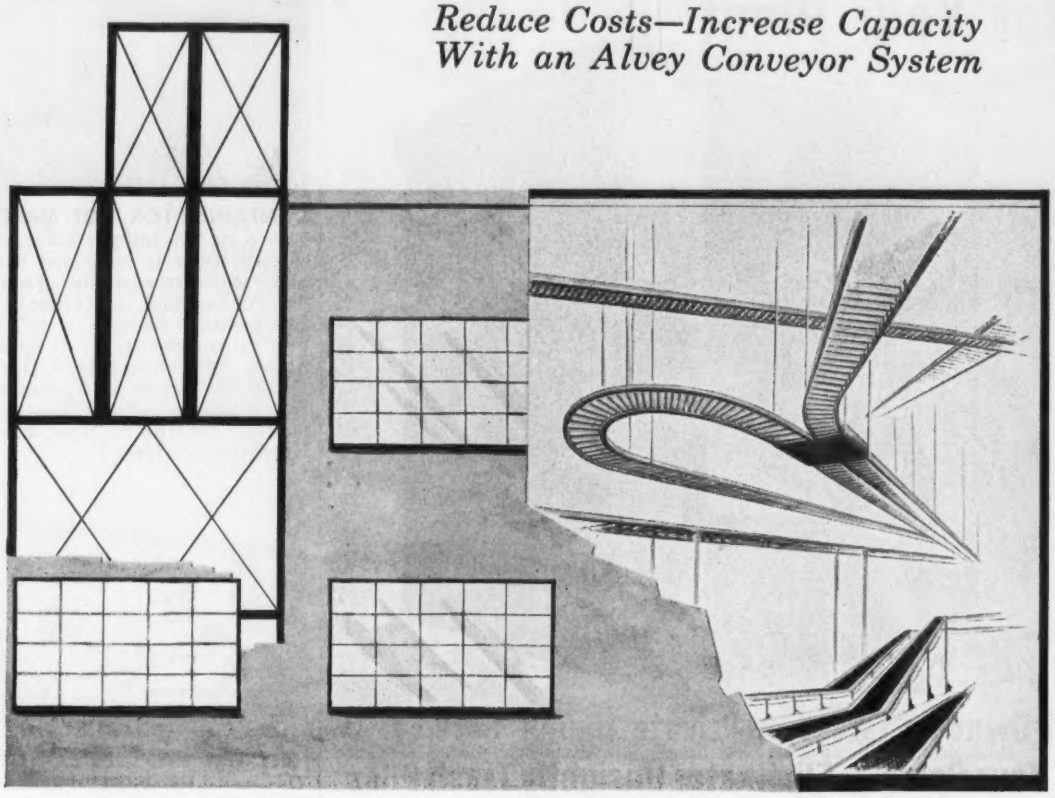
Unit consists of metal hopper (which can be attached with a dust-tight flexible boot), feeder and air-powered vibratory drive mounted under feeder. Supporting structure eleminates additional mounting

regulated by adjusting the air-supply pressure, and can be instantly started and stopped by a quick-acting manual or solenoid valve.

Description: Model 24S3-125 is two ft long, with a 1½-cu-ft hopper. Aluminum or stainless steel models protect food prod-

START YOUR OWN BUSINESS BOOM

Reduce Costs—Increase Capacity With an Alvey Conveyor System



NEW CONSTRUCTION

When you're *positive* you must build a bigger plant, to get more capacity, call in Alvey's experienced material handling engineers at the planning stage. When the decision is to add on, use their ingenuity to get all the capacity you build for.

MODERNIZATION

Often you don't need a bigger plant at all. Alvey engineers have helped increase production as much as 30% in *existing* plant area, with a minimum of new equipment. Before you expand, have Alvey analyze your present system. It costs you nothing to consult.

1911 1961 ALVEY'S 50th year ALVEY CONVEYOR MFG. CO.

Write for free copy of case history telling how Alvey revamped an existing system *and* engineered a new one, for the same company, with considerable success.

ALVEY CONVEYOR MANUFACTURING COMPANY
9307 Olive Street Road • St. Louis 32, Mo.

Branch Offices in Principal Cities

Successful material handling is Automatic with Alvey for:

A. E. Staley Mfg. Co. · The Hoover Co. · A.C.F. Wrigley · Royal McBee Corp. · Goodrich-Gulf Chemicals · Anheuser-Busch
Armour & Co. · Firestone · Whitehall Laboratories · Phillip Morris · Hiram Walker · Esso Standard Oil

7607 on Reader Service Slip.

OUT-OF-SIGHT

Waste and Refuse Storage for Your Plant

Plant-Owned System or Private Hauler Service Cuts Your Costs... Eliminates Unsightly Trash Piles

If trash piles, battered cans, scattered refuse, fire hazards and hit-or-miss collection are present in your plant, it may pay you to investigate the DEMPSTER-DUMPMASTER System.

You can own your own system or secure this vital service without capital outlay from one of the many Dumpmaster-equipped private haulers who operate in most major cities.

Clean, big-capacity containers, spotted at refuse accumulation points throughout your plant, provide enclosed, out-of-sight storage for waste and refuse, increasing plant cleanliness and improving employe morale.

Write today for a free brochure that describes this system and the name of your nearest private hauler.

ONE OF THE DEMPSTER DUMPSTER® SYSTEMS

FREE BROCHURE

Write for Name of Your Nearest Private Hauler

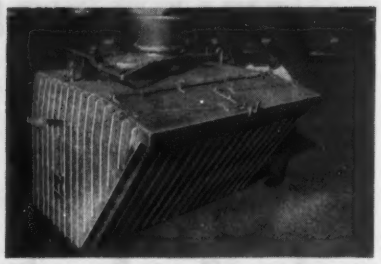
DEMPSTER BROTHERS

Inc.

Dept. FP-9 **KNOXVILLE 17, TENNESSEE**

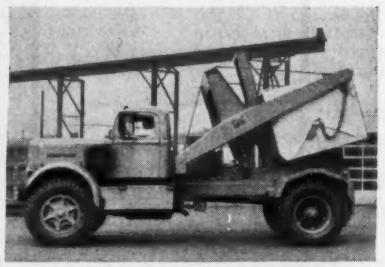
7608 on Reader Service Slip.

NEW PRODUCTS



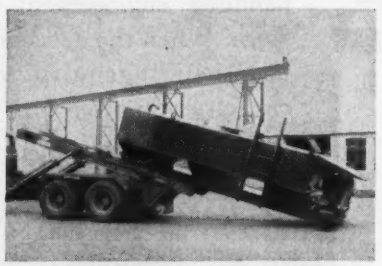
CONTAINER FOR HOT MATERIALS

This 6 cu. yd. tilt-type container was specially built to store and handle a high-temperature dusty product. It has cooling fins, a counter-balanced spring-hinged lid and a 16" sliding gate valve. When full it is picked up, hauled and emptied by a Dempster-Dumpster. Details are contained in a free brochure entitled "Special Containers." Dempster Brothers, Inc., Knoxville 17, Tenn.



NEW LFW HANDLES CONTAINERS

This new LFW 603-C, mounted on a White Mustang, was produced to handle scrap metal storage containers. It will handle containers in capacities up to 15 cu. yds. in all Dempster-Dumpster models. Lifting capacity is 18,000 lbs. Dempster Brothers, Inc., Knoxville, Tenn., offers a catalog brief No. 160 describing this and other materials handling systems.



PORTABLE FUEL OIL TANKS

This 2,000-gallon tank was produced for operation at temperatures as low as −90° F. It features its own pump and gasoline engine. Prime mover is a truck-mounted Dempster-Dinosaur which hydraulically lifts the tank into carrying position and puts it off. A new catalog section No. 12 describes the development. Dempster Brothers, Inc., Knoxville 17, Tenn.

Advertisement

ucts from contamination. There are no moving parts to contact the material being handled.

The smooth conveying surface resists abrasion, and can be cleaned with common cleaning agents.

Supplier: The Cleveland Vibrator Co., 2828 Clinton Ave., Cleveland 13, Ohio.

7609 on Reader Service Slip.

Light-capacity feeder vibrates to 6 tons/hr

Electromagnetic-type feeder, producing 3600 vibrations per min from rectified half-wave a-c, easily moves most dry bulk materials — from light, fine powders to heavy, coarse granular bits and chunks — up to 60 fpm.

Model F-152 is furnished complete with control box, for

Feeder can be fitted with various-size flat pan or tubular troughs — either of carbon or stainless steel

operations from 115-v, 230-v or 460-v, 60 cy a-c.

Supplier: Syntron Company, Homer City, Pa.

7610 on Reader Service Slip.

Belts for every food-conveying use . . .

. . . are colorfully and precisely pictured and graphically described in new 12-pg brochure offered by Burrell Belting Co.

Included are white Buna "N", tan rubber and tan Neoprene sanitary food-handling belts, rough-surface incline conveyor belts with red or white Buna "N" surface, polyethylene- or vinyl-surfaced heat-tunnel belts, cotton belts for packing and cooling-table uses.

Manufacturer is set up to produce the desired belt "prescription" to suit each application.

7611 on Reader Service Slip.

plants, companies, personalities

Nodaway Valley Foods, Inc.

has been formed in Corning, Iowa, to produce a complete line of canned drinks under the "Royal Major" brand name. Among new products soon to be released is a canned, concentrated milk product, on which founder Dr. A. P. Stewart holds a patent.

Food Corporation of America, Inc.

Minneapolis, formed in May of this yr to acquire active producing independent food processing plants and companies, has purchased for more than $5 million in cash Plymouth Rock Provision Co., Inc., 25-yr-old New York City meat processing and provision firm. Plymouth Rock employs 400, last yr grossed over $24 million, had net earnings of more than $500,000. Joseph and Lester Levy will continue as principal officers of Plymouth Rock.

Farm Crest Bakeries, Inc.

Detroit, has appointed William B. Trestrail to general manager of its Farm Crest Frozen Products, Inc. He had been sales manager of Red Star Yeast & Products Company's East Central Division.

Nalley's, Inc.

Tacoma, Wash., has acquired F & L Food Products Co., Colorado Springs, Colo., and its wholly owned subsidiary, Colorado Potato Flake and Manufacturing Company of Denver. F. James Lynch, Jr., will be president of the subsidiary, and will become a Nalley V.P. This is Nalley's fourth major acquisition during the past yr.

For more information on product at right, circle 7612 see information request blank opposite last page.

AND AWAY THEY GO on Wissco steel mesh belts. Ten tons of pretzels enter this oven every day at J. Reisman & Sons. Inside oven temperature begins at 600°F and is gradually reduced through 8 different zones.

Famous names ride on CF&I-WISSCO BELTS

And at J. Reisman & Sons, Inc., an old twist gets a new home

At the new 80,000 square foot bakery for J. Reisman & Sons in Pennsauken, N. J.,10 tons of pretzels are produced every day by each of four new ovens. Keeping the production line moving without downtime is a series of CF&I-Wissco steel mesh belts for each oven. The selection of Wissco was, of course, no accident.

"We used our former set of Wissco Belts in our Philadelphia plant for 13 years with no maintenance problems or replacements of any kind. We confidently expect at least 10 years of 24-hour service daily from our new Wissco Belts", states Mr. Albert Reisman.

Each Wissco Belt operates under tough conditions. The first is stainless steel mesh and carries the pretzels through water at 190°F with caustic soda added. A second belt then takes over to move the product under a constant shower of coarse salt. Finally the third belt transports the pretzels through a 100-ft. baking chamber with eight zones of gradually decreasing temperatures.

J. Reisman & Sons is typical of the companies that have specified Wissco for belt installations that *must* be reliable. Available in a number of styles, Wissco Belts combine quality material with sound construction for long service life and minimum maintenance. For the complete story on Wissco Belts contact Wickwire Spencer Steel Division, Woven Wire Products Sales Department, P. O. Box 311, Palmer, Mass.

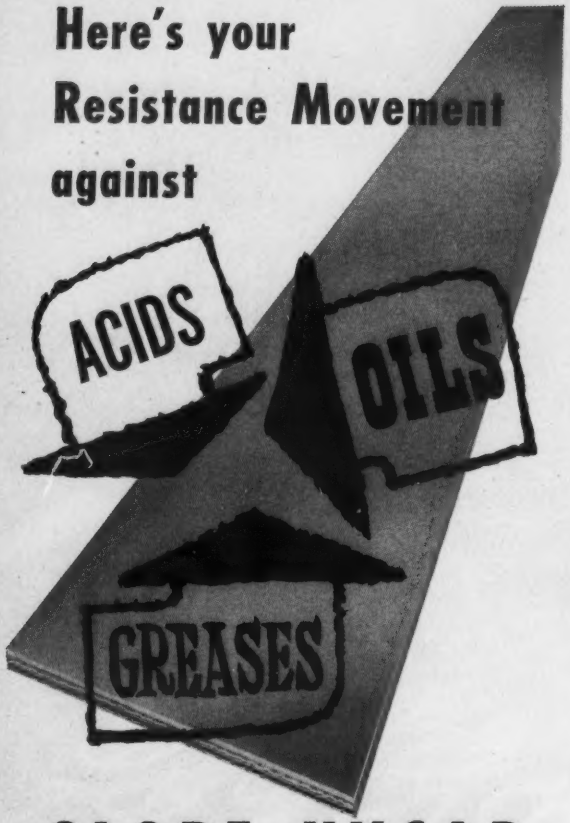
8450

Steel

Your assurance of American-made quality.

The Colorado Fuel and Iron Corporation
Denver • Oakland • New York
Sales offices in Key Cities

Here's your Resistance Movement against



GLOBE HYCAR AND NEOPRENE FOOD CONVEYOR BELTING

- Specially perfected to overcome the hazards, high costs and "down-time" of ordinary belting.
- Impervious to animal, vegetable and mineral oils.
- Completely resists greases, alkalies and acids.
- Will not pick up or impart contaminating odors and flavors.
- Resists cracking or peeling because the compounds are also calendered *into* the duck.
- Meets all specifications for food handling.
- Costs less because it lasts longer!

Other Globe Belting for the Food Industry:

WHITE SOLID WOVEN BELTING	
KANRY-TEX	PLASCELL
CELLULOSE	WAX-TREATED
WET GRAIN	BISCUIT BELTING

Write for complete catalogs and price lists.

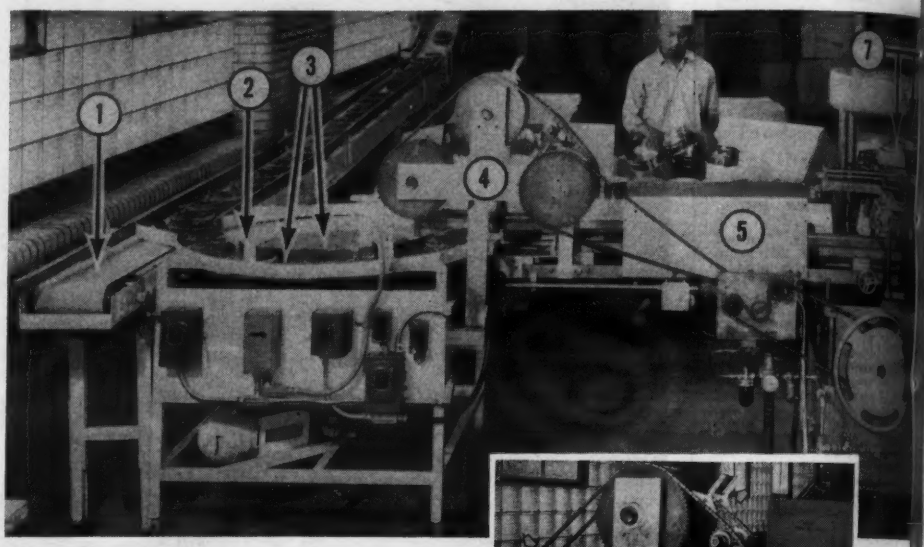
GLOBE WOVEN BELTING CO., INC.
1400 CLINTON ST. • BUFFALO 6, N. Y.

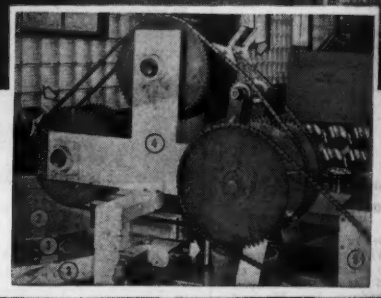
See us at Booth E-36
1961 Baking Industry Exposition
Oct. 7-12. Atlantic City.

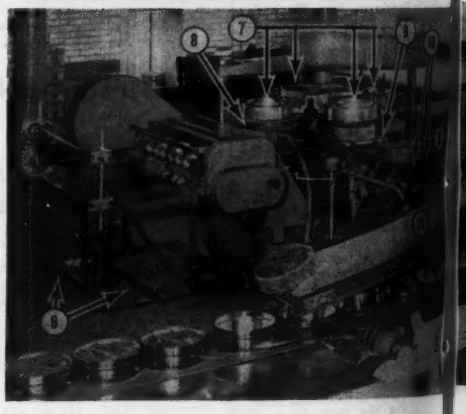
7613 on Reader Service Slip.

Seasonal fruit-cake processor switches to automatic cello-overwrapping. Result . . .

Wrapping rate—up 300% . . . product







Fruitcakes discharge via powered conveyor belt (1) from second-floor production department onto a large Teflon-coated turntable (2). By means of spring-steel guides (3), cakes are directed to an automatic infeed device (4) positioned over turntable and over wrapping machine's infeed conveyor.

Infeed device, designed and built by maintenance engineer, Harold Benson, consists of pusher bars mounted on a pair of endless chains. Pusher bars move down in back of cakes on turntable and push them through ultra-violet lamp (5) into wrapping machine.

Since this automatic infeed is powered by the wrapping machine, it thus is synchronized with the latter, assuring smooth and accurate transfer — a major factor in minimizing product breakage.

In the Wrap-King unit, cakes are transferred to an elevator head, while, simultaneously, an 18-in. cello sheet cut off from web (6) on machine's opposite side is fed over top of cake.

As elevating mechanism raises the cake through a die bushing, the cello which has been held over top of cake is carried through the die bushing, and is formed evenly around cake.

The cake, with the cello pulled tightly around it, is carried upward into one pocket of a four-station pocket-wheel (7). At this point, two side-tuckers and a backfolder fold the wrapper under the cake.

Pocket-wheel then moves partially wrapped cake off elevator, and the platform around the die-bushing wipes the fourth fold as cake travels away in the circular motion to the sealing station (8).

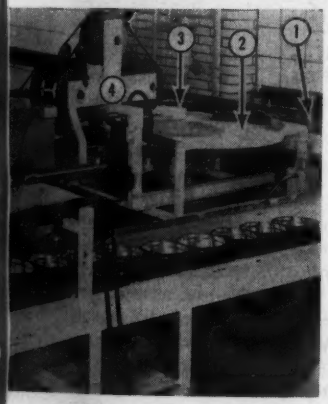
After sealing at 600 F, with a dwell time of about one sec on a bunch fold, cakes are transferred to a lowering platform (9) by a quarter rotation of the pocket-wheel. Lowering platform removes the wrapped cake from the pocket-wheel.

Discharge from wrapping unit is by two ½-in. V-belts (10), spaced about four in. apart, that convey the wrapped fruitcakes from lowering platform onto a Cakemaster-designed powered belt conveyor (11). (Air circulating under the cakes as they ride the V-belts cools and sets the seal.)

Conveyor indexes the wrapped cakes into metal containers (guided by operator, not shown), and containers then have lids and labels applied.

damage—down to 0.1%

FP STAFF



Upper left — Closeup of infeed device, showing chain-mounted pusher bars (arrows) and portion of drive chain in foreground. Lower right — Closeup view shows power-drive source for infeed device (foreground) and portion of four-pocket-wheel at top

CAKEMASTERS OF AMERICA, INC., 2348 W. Winnemac, Chicago, produce one product — fruitcake — mostly in the two-lb round size.

During their annual baking season, which begins in May and reaches a peak from September through December — they prepare and package more than two-and-one-half million fruitcakes.

Cakes are wrapped in cellophane, and placed in a two-piece slip-cover metal container; latter are packed 12 to a master carton and shipped everywhere in U.S.

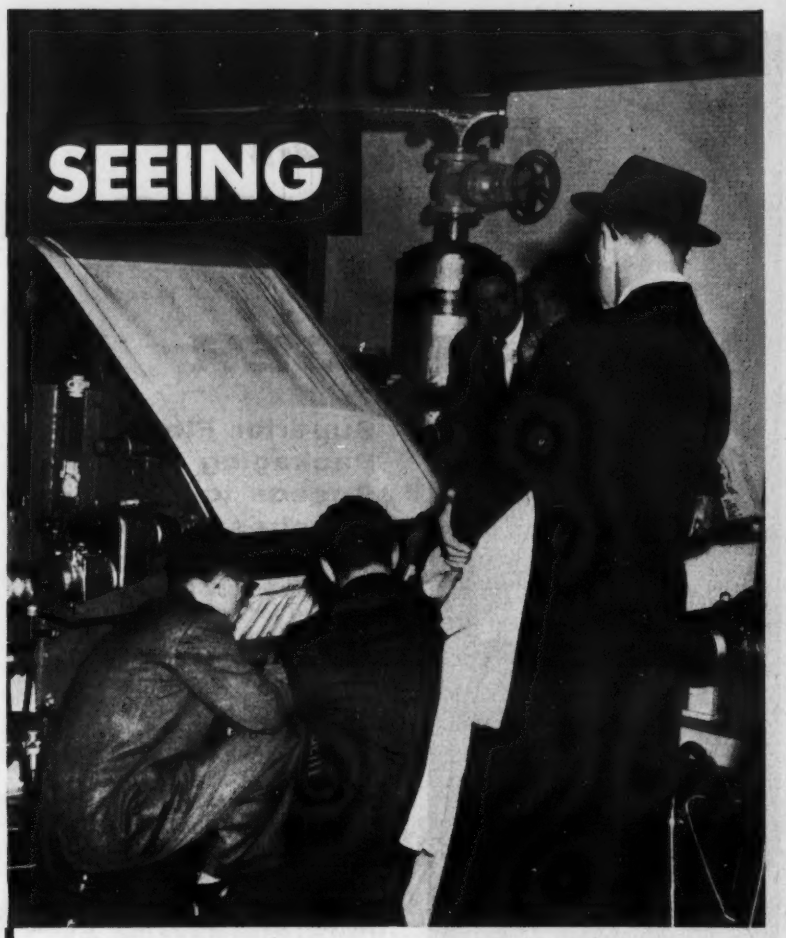
Problem: Previous semi-automatic wrapping methods of the fragile product had proved uneconomical both from standpoints of excessive breakage and high production costs.

Solution-Results: Cakemasters installed a high-speed (54-cake-per-min) automatic Model CKP-2 Wrap-King for overwrapping the fruitcakes in cellophane.

According to production superintendent Larry Gordon, product breakage in the wrapping machine is less than 0.1%, while wrapping rate has increased 300 per cent. Details of the operation are explained at left. END

Wrap-King Model CKP-2 overwrapper by Crompton & Knowles Packaging Corp., Holyoke, Mass. 7614 on Reader Service Slip.

300 MS-10 cellophane by American Viscose Corp., 1617 Pennsylvania Blvd., Philadelphia 3, Pa. 7615 on Reader Service Slip.



is the best answer

There is no quicker and better way to learn of new developments — to compare their relative merits—to get new ideas that may cut costs and improve your products — than to actually SEE what's new at the Exposition of Chemical Industries.

Your limited time will be well spent in studying the fact-filled displays of over 500 leading manufacturers of process equipment, materials handling, chemicals and raw materials, laboratory equipment and supplies, control instruments and automation.

Keep informed—plan your visit now, and bring your associates with you. It will more than pay you for the modest investment in time. Write for free advance registration. 2779

28th EXPOSITION OF CHEMICAL INDUSTRIES

N. Y. Coliseum, Nov. 27—Dec. 1, 1961

MANAGEMENT: International Exposition Company, 480 Lexington Ave., N. Y. 17, N. Y.

7616 on Reader Service Slip.

BARTELT CONTINUOUS MOTION PACKAGER

Superior Flexible Packaging at Speeds to 500 Pouches Per Minute

The PROVEN PRINCIPLE of horizontal work flow has been adapted for production of up to 500 pouches per minute on the Bartelt Continuous Motion Packager.

FILLING devices are custom-designed for packaging liquids, granulars, solids and powders. "Traveling beam" multiple heat sealers move with the web providing up to a half-second dwell time at relatively low heat for strong seals.

The Bartelt Continuous Motion Packager does the work that would require two, three . . . or even four conventional packaging machines.

Write for **NEW** Catalog Today!

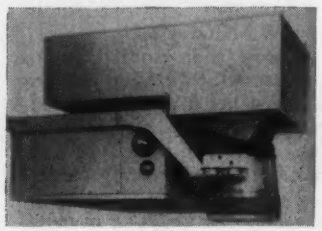
BARTELT ENGINEERING CO., INC.
Subsidiary of Riegel Paper Corporation
1908 Harrison Ave., Rockford, Illinois
New York, Chicago, San Francisco

7617 on Reader Service Slip.

Fills up to 3 100-lb bags/min

Uses: For bagging 6, 8 and 10X sugar, powdered starch or similar free-flowing products that tend to aerate.

Features: Weighing bagger has accuracy of ± 0.10 per cent. It attains accurate feeding through van-type feeder that has two feed rates and two shut-off gates. During bulk feed, both gates are open; during dribble feed, only smaller gate is open.



Pneumatic, expanding-type bag holder provides dust-tight seal around entire bag opening

Gates are gasketed with heavy rubber for positive shut off.

Description: Gross weighing bagger, G18R, has flexure-plate scale that supports pneumatic, expanding-type bag holder.

Scale contains mercury switches that control bagging operation. Actuated by scale weigh-beam position, switches emit impulses to proper controls.

Scale's flexure-plate suspension system has no knife-edge pivots or other friction surfaces subject to wear; is unaffected by dirt, moisture or shock.

Supplier: Thayer Scale Corp., 1 Thayer Park, Pembroke, Mass.

7618 on Reader Service Slip.

Greaseproof innerliner is low-cost, strong, flexible

For use as an innerliner in multiwall and duplex bags, new Flexobag Greaseproof combines "high-fat" protection, excellent strength and easy handling flexibility with economy.

Material's greaseproofness is as functional in folds and creases as with flat surfaces.

Principal application to date has been as innerliner in dry dog food bags — to maintain fresh product quality, and to prevent fatty substances from penetrating and spoiling package appearance.

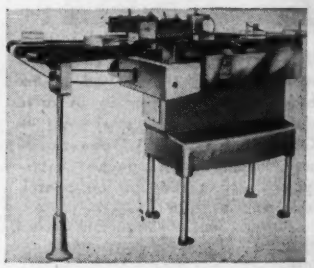
Supplier: Rhinelander Paper Co., Div. of St. Regis Paper Co., Rhinelander, Wis.

7619 on Reader Service Slip.

High-speed checkweighing of unstable containers

Uses: Open cans, jars, bottles, cartons, and even flexible pouches and bags are accurately checkweighed at speeds up to 300 per min — and off-weights are instantly diverted from the line — on new Model 600 checkweigher.

Features: Ultra-smooth travel of the single endless belt, especially developed for this machine, provides maximum stabilization of container before it gets to the scale, and during the split-second when it is weighed and classified.



Unit is completely waterproof, and can be steam-cleaned or hosed down without prior preparation

Belt also serves to carry away spilled material from over-fills.

Description: Checkweigher's three-way segregating system (two-way system also available) uses pair of opposing arms to gently guide off-weight containers from production line — underweights and overweights to opposite sides.

Acting on electrical signal from scale, arms snap into position just as an off-weight package approaches.

Weight-controls for different

packages and tolerances are simple and easily adjusted. Most package-size changes require no change parts.

Special cantilevered construction permits containers to be conveyed across scale at one extreme side of unit, away from vital operating parts. All external surfaces are of non-corrosive aluminum, stainless steel or chrome-plate — devoid of crevices.

Supplier: FMC Corp., Packaging Machinery Div., 4900 Summerdale Ave., Philadelphia 24, Pa.

7620 on Reader Service Slip.

Selecting the right shipping container for your product

First section of 34-page brochure describes in individual detail the broad range of basic corrugated container designs available from Packaging Division of Olin Mathieson Chemical Corp.

A second section discusses special container designs for products that are unique in shape or size, or that require special in-transit protection.

Other sections in "Your Packaging Guidebook" detail advantages of several outstanding recent developments in corrugated container construction, and provide information on company's design and technical services.

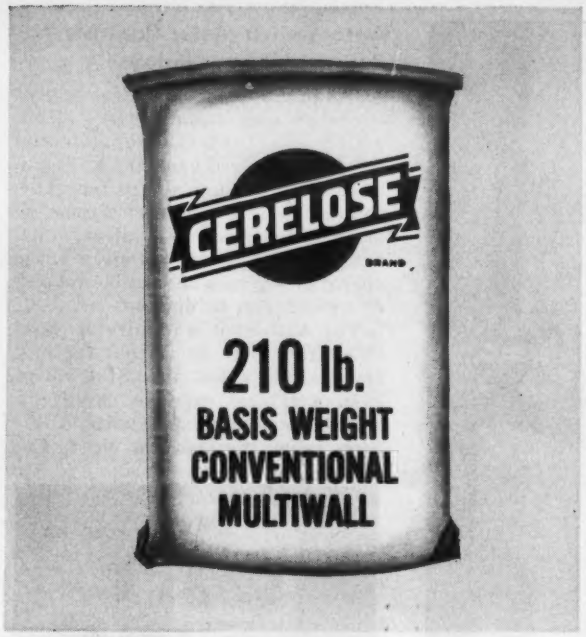
Photographs and line-drawings throughout the brochure are above average as informative illustrations.

7621 on Reader Service Slip.

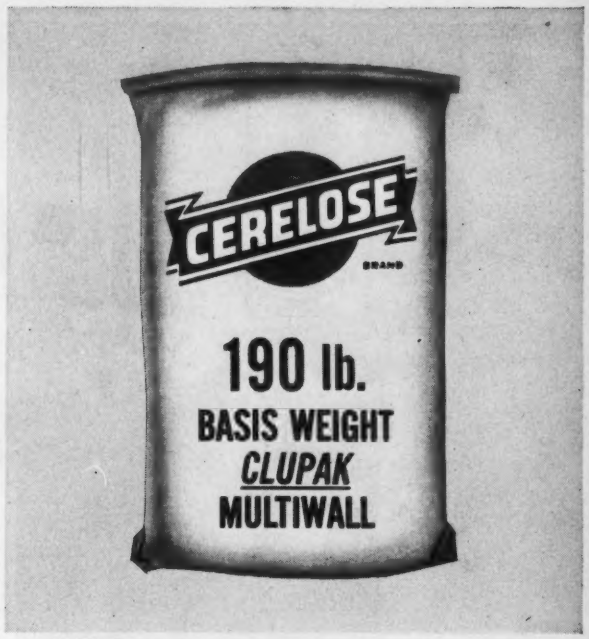
Pressure-sensitive adhesives guide

To aid prospective industrial users in selecting the proper adhesive for their individual applications, 9-pg Technical Service Bul 301, offered by National Starch and Chemical Corp., describes the various kinds of pressure-sensitive tapes, labels and wall coverings now available.

Recommended property tests for evaluating the adhesive mass to be used in tape and label categories, property specifications for various label



BEFORE: 5-ply conventional kraft bag (4 plies of 40 lb. kraft and one 50 lb.)
% of bags damaged: 1.5%



AFTER: 4-ply multiwall CLUPAK extensible paper (2 plies of 40 lb., one 50 lb., one 60 lb.)
% of bags damaged: 0.17%

CORN PRODUCTS CO. cuts bag damage 88% with *CLUPAK* extensible paper multiwalls

Loss of product in shipping, and consequent annoyance to customers, was a headache Corn Products Company wanted to remedy. CLUPAK extensible paper multiwalls, because they g-i-v-e to absorb strain and impact, sharply reduced bag breakage—a boon to customer relations.

In tests conducted last year by Corn Products Company, the normal damage rate of 9 bags per 600-bag car was reduced to only one bag in 600—using CLUPAK multiwalls!

Ask your paper salesman about a trial shipment of CLUPAK extensible paper multiwalls.

EXTENSIBLE CLUPAK PAPER **Compared to conventional kraft of equal basis weight has:**

- Up to 7 times more controlled machine direction stretch.
- 3 to 5 times greater ability to withstand impact and shock.
- 10 to 20% increase in cross direction stretch.
- 40% improved puncture resistance.
- Identical surface properties and printability.

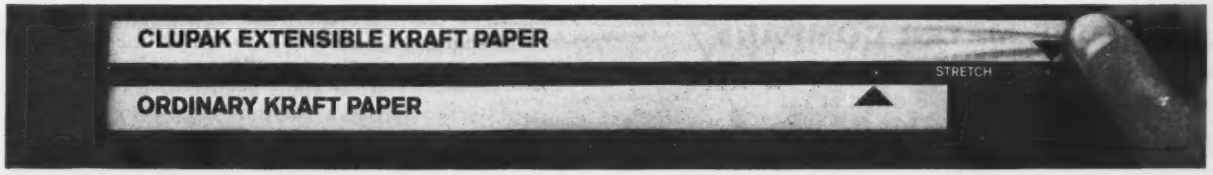
EXTENSIBLE CLUPAK® PAPER *

"it stretches to shrink your costs"

*CLUPAK, Inc.'s trademark for extensible paper manufactured under its authority and satisfying its specifications. CLUPAK, Inc., 530 5th Ave., N. Y. 36, N. Y.

For information, contact the Clupak licensee nearest you:

ALBEMARLE PAPER MFG. CO. • CALCASIEU PAPER CO. • CONTINENTAL CAN CO., INC. • CROWN ZELLERBACH CORP. HUDSON PULP AND PAPER CORP. • INTERNATIONAL PAPER CO. • ST. REGIS PAPER CO. • UNION BAG-CAMP PAPER CORP. • WEST VIRGINIA PULP AND PAPER • For Canadian and Foreign Licensees write Clupak, Inc., 530 5th Ave., New York 36, New York



7622 on Reader Service Slip.

How Neptune Syrup Meter

PAID OFF TWO-TO-ONE

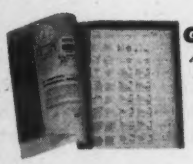
in first year at J. Hungerford Smith

By permitting purchases of caramel color at tank-car prices, a complete storage and metering system paid for itself twice over in materials costs alone during the first summer. And this is only part of the savings made by J. Hungerford Smith Company, manufacturer of fine root beer flavors.

Formerly, the caramel color was purchased in drums, requiring much man-handling and storage space. It took a man full time to measure the syrupy material with buckets. Now it takes only a few seconds for each batch. The operator simply sets up the Auto-Stop and opens the valve. The meter does the rest... shuts off automatically at the exact quantity required by the formula. The meter even turns the pump on and off.

Biggest advantage of all, according to Mr. W. Carvel Martin, plant manager: "It takes the guesswork out of the formula."

You can make savings like this in your plant.



GET THE FACTS
Ask for helpful Meter Data Bulletin 566 LFP See Neptune Data Pages in Chemical Engineering Catalog.

NEPTUNE METER COMPANY
LIQUID METER DIVISION
47-25 34th St., Long Island City 1, N.Y.

neptune

Branches in:
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PHILADELPHIA (Bala Cynwyd)
SAN FRANCISCO (Millbrae)
Canada: Neptune Meters, Ltd.,
TORONTO 14, ONTARIO

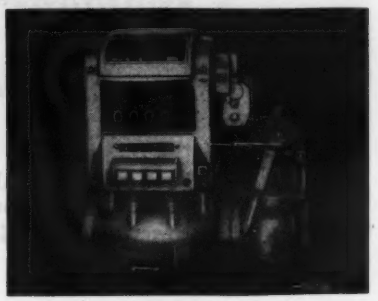
7623 on Reader Service Slip.

Auto-Switch Meter Controls Pumps, Valves, Relays

Neptune Auto-Switch register features an explosion-proof switch which is actuated automatically when any desired quantity of liquid has passed through the meter. The switch can be used to turn pumps on or off, actuate solenoid valves, start agitators, or control other cycling operations by use of suitable relays, etc. which can be devised.

The Auto-Switch feature is available either with or without the mechanically coupled Auto-Stop valve.

In a typical example using the Auto-Switch Register with Auto-Stop valve, the operator clears the



register back to zero, and sets the register for the required number of gallons or pounds of liquid ingredient to be delivered to a kettle or mixing tank. He then opens the coupled Auto-Stop valve to start the cycle. This also closes (or opens) the switch. When the desired quantity has been delivered, the meter automatically trips the valve shut, and at the same time actuates the electric switch.

Gauge-Stick Errors of ⅛ in. Can Cost Thousands of Dollars

Inaccurate liquid measurements can add up to thousands of dollars a year in wasted materials, time, effort, to say nothing of lowered quality.

For instance, it's a tough job to read a gauge stick down inside a 4-ft. tank, particularly when the tank is being filled with hot steamy liquids, or when the liquid is swirling around. Yet an error of just ⅛ in. means that *one gallon too much or too little* has gone into the tank. This *can* add up to thousands of dollars in wasted batches in the course of a year's production.

For formula-perfect batches time after time, get rid of the stick and put a Neptune Auto-Stop meter in every liquid line leading to the blending tank or kettle.

uses and a diagram illustrating the hold or shear and 20-degree hold tests for adhesives are included.

In addition, the bulletin compares the typical characteristics of ether, rubber cement and acrylic adhesives, and cites property areas where the latter offer particular advantages.

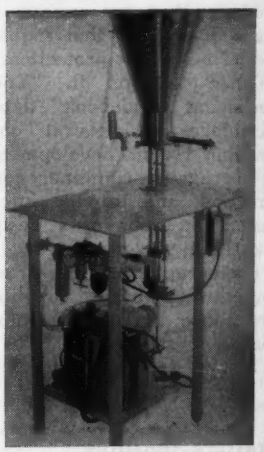
Specific property data on pressure-sensitive products manufactured by National Starch and Chemical also are given.

7624 on Reader Service Slip.

Fills viscous products at controlled temperatures

Sanitary piston filler that dispenses creams and other viscous products requiring constant temperature control maintains product at any predetermined temperature up to 160 F.

Thermostatically controlled water from a self-contained



Operation may be by means of air motor or foot treadle

heating system is constantly recirculated through the double-jacketed stainless steel hopper and cylinder. (Models without jackets and heating systems also are available.)

Range of fill is from ½ oz to 10 oz per stroke. Hopper capacity is three gal, with larger hoppers available.

Supplier: Chase Equipment Co., 45-47 E. 19th St., Brooklyn, New York.

7625 on Reader Service Slip.

plants, companies, personalities

Krim-Ko Corporation

and its subsidiary, Bireley's, will move headquarters into a remodeled 57,000-sq-ft, one-story office building and plant at 26 N. Gargen Ave., Bensenville, Ill. — a Chicago suburb.

General Mills

has appointed Dr. Owen K. Ash project leader in the Exploratory Food Development Department of its Central Research Laboratories.

National Dairy Products Corp.

has promoted Frank R. Alfino to senior research food technologist in the technical services laboratory of company's Dairy Research Center in Glenview, Ill.

Corn Products International

a division of Corn Products Co., has ventured into Australia via an agreement with Clifford Love Starch Products, Pty., a wholly owned subsidiary of Clifford Love & Co., Ltd., to furnish that firm technical assistance. The parent Australian company and its subsidiaries produce food and laundry products for consumer use, industrial products and animal feeds.

Florida Juice Company

subsidiary of June Dairy Products Co., Inc., Miami, announces that well-known citrus man Ben Jacobstein, who had been president of Florida Juice prior to 1956, is returning as general manager, replacing Frank Knight, resigned.

For more information on product at right, circle 7626 see information request blank opposite last page.

WHO PLANTED THE LOG IN THE PLANTS?

Each of these boxes comes from a different Hoerner plant – plants that range from Minneapolis to Mission and Danville to Sand Springs. Eight new plants have been added in the past five years to give better, faster service to more customers. The log? It's from the Hoerner mill in Missoula, Montana. It was planted here to show you Hoerner's integration – – another reason for their dependability.

HOERNER BOXES, INC.

CORRUGATED PACKAGING SPECIALISTS FOR MID-AMERICA

GENERAL OFFICES: 600 Morgan Street, Keokuk, Iowa • MILL: Missoula, Montana • PLANTS: Fort Smith and Little Rock, Arkansas; Danville and Waukegan-Gurnee, Illinois; Des Moines, Keokuk and Ottumwa, Iowa; Minneapolis, Minnesota; Tupelo, Mississippi; Springfield, Missouri; Sand Springs, Oklahoma; Sioux Falls, South Dakota; Fort Worth and Mission, Texas • ASSOCIATE: Cajas y Empaques Impermeables, S.A., Mexico City D.F., Mexico

Humidity card promotes good packaging storage

Small humidity-indicating card helps users of flexible packaging materials — especially cello and paper — to maintain proper conditions in storage areas.

Offered by Continental Can Company's Flexible Packaging Division, card may be hung in storage room and used as guide for humidity control to assure continued freshness of flexible bags, pouches, rolls, sheets and tear tape.

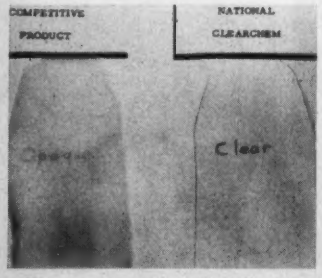
Six chemically treated, color-changing indicator spots, graded by per cent, show "caution," "safe storage" and "dangerous" storage conditions.

(For trouble-free performance, ideal relative humidity ranges from 40-60 per cent, at temperatures from 60-70 F.)

7627 on Reader Service Slip.

Bottle-labeling adhesive clearly outstanding

Features: The transparent characteristic of new Clearchem eliminates unsightliness of globs and smears resulting



Transparency of new adhesive (right) eliminates unsightliness of sometimes unavoidable excess of adhesive around label

from adhesive squeeze-out or slip during the bottle labeling operation.

At the same time, the adhesive — a modification of manufacturer's established Chemtite adhesive — has excellent bonding and machining properties which provide operating economies and a trouble-free operation.

Description: Neither heavy- nor thin-bodied, Clearchem

Longest-lasting
Seabrook Farms
BABY LIMA BEANS in CHEESE SAUCE
© 1961, 3M CO. "SCOTCHPAK" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.

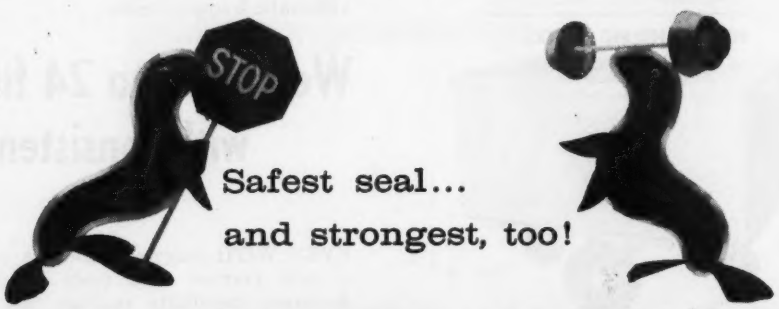
For fail-proof film seals, Seabrook Farms depends on "SCOTCHPAK." The result is safer, more efficient packaging.

seal in film... SCOTCHPAK® BRAND

The stronger, longer-lasting seal of "SCOTCHPAK" has solved the problem of film dependability in food packaging. "SCOTCHPAK" is made differently than any other film. It's specially tailored by 3M with the strictest quality-control supervision. "SCOTCHPAK" heat-seals easily at 300° to 400° F., 20-60 psi pressure, making a seam that is as strong and impermeable as the film itself — a seal that lasts much longer than the shelf life of your product. "SCOTCHPAK" stays pliable, too, at temperatures from –70° F. to 240° F. *If you have been let down by seals that let go . . . or films that fail in any way* . . . it's time you tried "SCOTCHPAK." We will be happy to send you samples and work with your packaging people. Write or call Film Products Group, 3M Co., 900 Bush Ave., St. Paul 6, Minn., Dept. ICC-91.

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY



Safest seal...
and strongest, too!

For film seals that never lose their grip, follow the example of Armour & Company's Continental Cuisine.

For leakproof film seals, San Bernardino Sausage has found "SCOTCHPAK" to be the answer in selling and serving.

7628 on Reader Service Slip.

possesses the favorable characteristics of both types.

In the machine, it runs as cleanly as a thin-bodied adhesive, spreading evenly to a thin film at high machine speeds.

However, the moment the glued labels (virtually any kind of label stock) are applied to bottles, it grips as firmly as heavier-bodied compounds.

It has good pot stability, won't drip from picker plates, is not stringy and machines the same in any climate. In trials to date, bottlers have reported up to 33 per cent increased mileage (or coverage).

Material is ice-proof and water-resistant.

Supplier: National Starch and Chemical Corp., 750 Third Ave., New York 17, N.Y.

7629 on Reader Service Slip.

Outperforms double-wall baler bags, cuts costs 10%

Uses: "Balex" bag-type container, made from the first heavy- duty CLUPAK extensible kraft paper made on a production basis, handles products currently using balers — sugar, flour, dog food, coffee, produce — and also such products as poultry feeds, rice and salt.

In addition, "Balex" lends itself to many applications now using more expensive containers where crush portection is not a major factor — especially such pre-packaged items as frozen foods, cake mix, gelatin desserts.

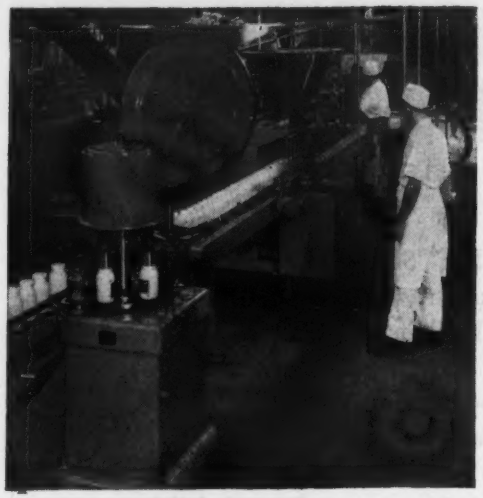
Features-Description: New product has a versatility which makes it flexible enough for easy handling, yet it is stiff enough to shape up like a box for square and neat palletloads.

"Balex" meets all requirements of automated production line filling and closing. It has the conventional construction of a pasted bottom and open mouth, and can be closed either by gluing or sewing.

Supplier: West Virginia Pulp and Paper Co., Multi-Wall Bag Div., 230 Park Ave., New York 17, N.Y.

7630 on Reader Service Slip.

IT PAYS TO CAP'EM with CAPEM



Model C-4F CAPEM in action on the new mayonnaise and salad dressing line at Pfeiffer Food Products, Buffalo, N. Y.

This CAPEM machine is applying 70mm caps to 7200 jars an hour. A new Consolidated feature is a special chuck-arresting device which prevents the chuck from descending if no caps are available.

CAPEM Screw Capper speeds range from 2,000 to 20,000 containers an hour for any standard cap or cover and many special types. They combine low initial cost, with low operating and maintenance cost.

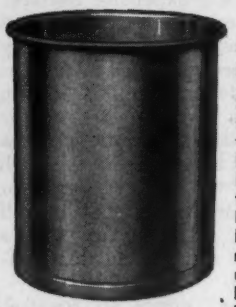
CAPEM delivers a perfect *leakproof* seal whether you're processing bottles, cans or jugs of any shape or size. Our customers agree—and you will too—*it pays* to cap 'em with CAPEM!

Write Sales Manager, Consolidated Packaging Machinery Corp.,
(a subsidiary of International Paper Company)
1400 West Avenue, Buffalo 13, New York

—CAPEM→ THE MODERN SCREW CAPPER

7631 on Reader Service Slip.

STANcase®
STAINLESS STEEL
EQUIPMENT



SANITARY DRUMS

Of 16-gauge Stainless Steel with polished and seamless inner surfaces, rolled top rims, extra heavy-gauge foot rings, bottoms raised from floor. In three sizes of 30-55-60 gallon capacities.

Shown are but a few popular models of STANcase Stainless Steel Equipment designed to meet the varied needs of all Food Handling Plants. Each product, ranging from Scoops and Ladles to Cooking Kettles and Tables, represents the very utmost in Functional Design and Sanitary Efficiency, requiring minimum maintenance with greatest cleansing ease. Rugged heavy-gauge construction or lightweight streamlined design assures economy of LONG LIFE SERVICE & OPERATION EASE.

FOOD HANDLING TRUCKS

No. 48

SCOOPS & MEAT FORKS

All Stainless Steel seamless construction. Lightweight, Sanitary Efficiency designed for heavy duty.

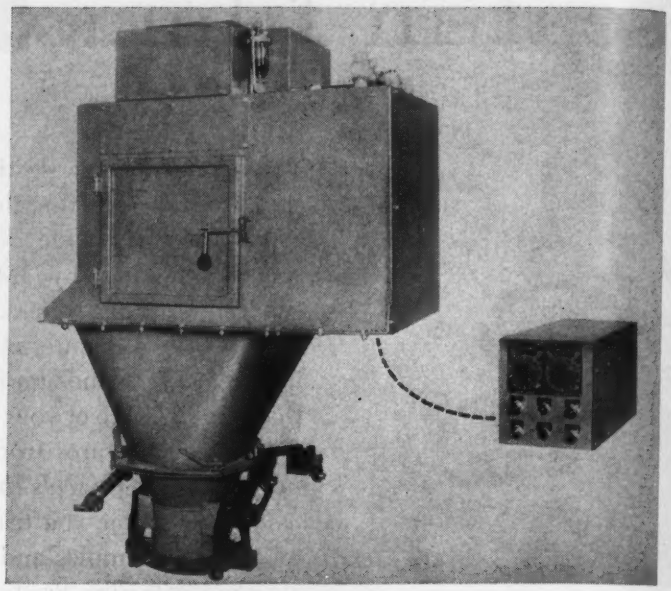
Standard, Tilting, straight-sided or tapered, with or without chimes. 8 to 20 Quart capacities. Finest construction features.

STAINLESS STEEL PAILS

To select products in the Sizes and Capacities you require and to discover New Aids for Food Handling Efficiency, SEND FOR NEW STANcase CATALOG No. 60.

The Standard Casing Company, Inc. 121 Spring St., New York 12, N.Y.

7632 on Reader Service Slip.



Weighing adjustments to fractional-oz accuracy per bag can be made by adjusting knob on central control box. Latter may be mounted separately from scale

With free-flowing materials, new automatic bagging scale . . .

Weighs up to 24 fifty-lb bags/min with consistent accuracy

EVEN WITH sluggish materials — mashes, meals and powders — new SPEEDAC E-50 scale weighs 16 fifty-lb bags per min. Accuracy capability reaches two sigma one oz. This dramatic performance is result of an ingenious device which speeds up beam response, leading to faster feed cutoff. Beam moves toward balance in perfect dynamic control. Movement trips a switch to close the inlet gate and/or stop feeder (belt, screw, vibrating or rotary).

Then, beam trips weigh-hopper discharge mechanism, dropping contents through bottom hopper spout into bag.

This controlled dynamic response greatly reduces effects of variations in the falling column at conclusion of a weighing — making compensation almost unnecessary in many applications. However, adjustments can be made to fractional-oz accuracy.

Inflow of materials is controlled by varying inlet opening through a slide operated by a handwheel with a graduated scale.

For gravity feed, an electrically controlled pneumatic valve opens and closes a sealed, radial gate. For sluggish materials, an agitator is added in inlet chute. Agitator is driven by V-belt from an enclosed motor controlled by a beam-operated switch.

New SPEEDAC E-50 has a wide range of capacities, with these standard sizes: five to 25 lb; 10 to 50 lb; 20 to 100 lb. Duplex units approximately double these outputs, and Triplex models give even high-

Our big three in cartons meet everyday at Olin

The big three in cartons are the graphic designers, the structural designers and the printers. Olin has made them even more important by bringing them together under one roof. The continual interchange of ideas possible at the Olin Carton Service not only produces better cartons, it avoids any of the many mistakes that can happen when Creative is three states away from Structural, and Printing is in another time zone.

The cartons turned out by Olin's centralized (and talented) staff are made of Omnikote, the strongest board in the industry. They are printed by one of the most advanced printing establishments in the world. And they are graphically designed to do the job of flagging down the nearsighted housewife who's left her glasses home. So if you're having trouble with cartons, tell us about it. Olin's big three probably have the answer.

PACKAGING DIVISION **Olin**
FOREST PRODUCTS OPERATIONS, P.O. BOX 1225, WEST MONROE, LA.

For more information on product at right, circle 7633 see information request blank opposite last page.

er speeds and/or accuracies.

Discharge options include automatic discharge, manual pushbutton, foot-pedal switch, bagholder switch, timer or impulse from allied equipment. Duplex units incorporate device to alternate the scale discharges.

Unit is available in stainless steel for foods.

Supplier: Richardson Scale Co., Van Houton Ave., Clifton, N.J.

7635 on Reader Service Slip.

New-type high-barrier, low-cost paperboard

Superior barrier properties at low cost are offered by new coated paperboard, now available in commercial quantities.

Material has high resistance to moisture, grease, air, gases, odors and many acids and alkalies. Packages made of it help retain the original freshness, aroma and flavor of food products.

Eventual applications include cookies, cereals, dehydrated soups, fresh foods, frozen foods, mustard, sauces, syrups and milk.

Special "Daran" coating, developed by Dewey and Almy Chemical Division of W. R. Grace & Co., derives part of its advantage from the relatively thin, hence inexpensive, film needed to attain high moisture resistance.

In addition, its high impermeability to grease, gases and chemicals gives the paperboard a property that previously could be had only with more expensive laminates.

Supplier: Potlatch Forests, Inc., Lewiston, Idaho.

7636 on Reader Service Slip.

Additional information quickly!

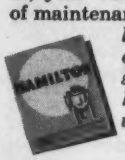
Use the convenient Reader Service Slip, found opposite the inside back cover, to secure additional information for application to your problem.

NOT JUST ONE OR TWO, BUT... THREE MIXERS

NEW HAMILTON

TRIPLE DUTY AGITATOR

Hamilton's new TD Triple Duty Agitator reduces costs, increases efficiency . . . makes mixing easier. With combined efforts of three agitators, nothing escapes the mixing process . . . dead spots are eliminated. Designed to provide the utmost in efficient, economical mixing, the TD gives you the latest in easy-cleaning, sanitary design at a very reasonable cost. For mixing and cooking, specify Hamilton Stainless Steel Kettles. They are efficient, designed for easy cleaning, and precision-built to operate year in, year out with a minimum of maintenance. *Write for catalog illustrating conventional and steam-jacketed kettles with or without agitators.*



The TD mixer can be used on these standard Hamilton kettles.

Style A
⅔ jacketed. 15 to 500 gallon capacity. Type 304 or 316 stainless steel. 40, 90, or 125 p.s.i.

Style SA
Like style A except it has balloon jacket and tubular legs with adjustable feet.

Style CW
Manually operated tilting kettle, available with hydraulic dump. 30 to 150 gallon capacity. Specials up to 300 gallons. For heavy, viscous products.

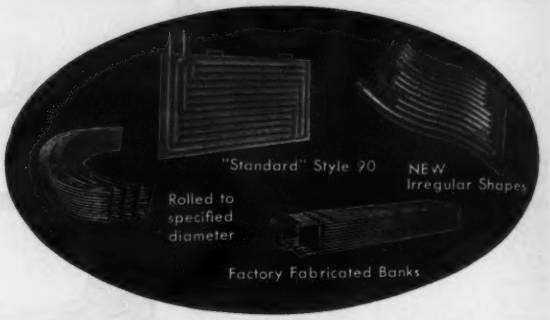
ESTABLISHED 1876
HAMILTON Kettles
DIVISION OF BRIGHTON CORP.
820 STATE AVENUE CINCINNATI 4, OHIO

7634 on Reader Service Slip.

PLATECOIL®

FOR ALL KINDS OF TANK AND PROCESS HEATING AND COOLING

- Built to fit application requirements
- High heat transfer capacity
- Compact units save space
- Easy to install
- Easy to remove for cleaning
- Available in variety of weldable metals
- Operating Pressures up to 250 psig.



"Platecoil" can be furnished to comply with ASME Code.

Send for Bulletin P53

PLATECOIL® DIVISION

TRANTER MANUFACTURING, Inc., LANSING 9, MICHIGAN

7637 on Reader Service Slip.

WARRICK

Floatless, Electrode Type LIQUID LEVEL CONTROLS

give you all these advantages!

No moving parts in the liquid • Easy to install • No adjustments necessary • Unaffected by acids or caustics • Unaffected by pressure or temperature • Standard 2&3 pole units listed by U/L

Write for 32-page Catalog which gives complete specifications

Two pole control shown at left

YOU CAN USE OUR CONTROLS FOR:

- Single & multiple pumps
- Motor & solenoid valves
- High & low cutoffs & alarms
- Evaporators
- Pressure vessels
- Storage tanks
- Waste sumps

Special controls to custom requirements

CHARLES F. WARRICK CO.

1964 W. Eleven Mile Road, Berkley, Michigan

Dept. 15 Telephone JOrdan 4-6667

7638 on Reader Service Slip.

that's interesting

Milky way!

Last yr, it took more than 150,000 cows to produce the one billion lb of fluid milk whipped into the nation's giant batch of candy.

In a real barnyard collaboration, the efforts (ugh) of some 270,000 hens were required to lay the 54 million eggs used by the candy industry.

Pot broileth over!

Only 20 yr ago, the average U.S. consumer ate 1.97 lb of broiler annually. Ten yr ago, the figure had moved up to 8.56 per capita. But today, according to marketing specialist Marshall Miller at Texas A&M College, we each eat an average 23.65 lb of broiler per yr.

Executive sweet!

According to Candy, Chocolate and Confectionery Institute, a number of executives have found that a jar of candy on the desk, nibbled at during the business day, has a calming effect in the midst of the tensions of the day.

Fourteen years ago Morton Salt stopped worrying about hydraulic oil performance

Harlen Bufka, assistant mill foreman (center) and American Oil's Norm Pagels, review specifications of AMERICAN Industrial Oil. Oil has been used for 14 years in hydraulic press that forms salt blocks under 800-850 tons pressure.

by N. M. PAGELS
About the Author

For 17 years "Norm" Pagels has been providing industrial customers with technical assistance on lubrication problems. His qualifications for this assignment include a degree in chemistry from the Central Michigan University and the completion of his company's Sales Engineering School.

☆ ☆ ☆

Back in 1946, Morton Salt Company installed a 1,000 ton press for forming salt blocks in their Manistee, Michigan, plant. They ran the press briefly with a break-in oil as the hydraulic medium. In 1947, they added our industrial oil to the reservoir. Worries stopped then.

There has never been a complete oil change. Only make-up oil has been added to the reservoir since the initial fill. There has never been any hydraulic pump trouble or a failure of any kind due to the oil. Annually, we take a sample of the oil for analysis by our Technical Service laboratory (at our expense). The oil continues in excellent condition. Morton Salt plant management reports that it (1) holds viscosity (2) resists oxidation (3) lubricates effectively, minimizing wear (4) exhibits excellent demulsibility and (5) is notably resistant to foaming.

☆ ☆ ☆

Would you like to have the trouble-free performance from an oil that AMERICAN® Industrial Oil provides? Call your nearby American Oil office.

Quick facts about
AMERICAN® Industrial Oil

- Antioxidant gives oil resistance to chemical change, minimizes deposits.
- Inhibitor "plates out" on metal surfaces, prevents corrosion.
- Receives special refining to minimize emulsion problems. Contains additive to minimize foaming.
- High viscosity index. Resists temperature change.

AMERICAN OIL COMPANY

AMERICAN

910 SOUTH MICHIGAN AVENUE
CHICAGO 80, ILLINOIS

7639 on Reader Service Slip.

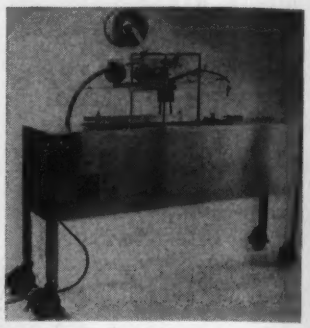
That new ingredient is just what our product needed. Where did you get the idea?
FOOD PROCESSING
. . . where else?
Eliminate pasty quality of many starch based foods
Pitfalls in formulating your own flavorings
New form of corn excellent freeze-th
Increased importance for Annatto color in cheese, ice cream, edible oils, etc.
Concentrated wine flavors contain no alcohol

packaging

Instant-setting bonds with compact carton sealer

New Autokrat sealer applies United Shoe Machinery's hot-melt Thermogrip adhesive to top flaps of automatic-bottoming cartons.

Adhesive's instant-setting quality produces fibre-tearing bonds without the delays experienced when solvent-type adhesives are used; it also makes possible the compact unit, which eliminates lengthy conventional pressure section.



Compact machine also is mobile and adjustable

Packers of ice cream novelties and other dairy products have shown particular interest in the new unit.

Supplier: Edwin J. Schoettle Co., Inc., North Wales, Pa.

7640 on Reader Service Slip.

"Glossary of Packaging Terms" — Third Edition

For use by industry and government agencies, this 172-pg Third Edition of the "Glossary of Packaging Terms" incorporates many additional terms and reconciled terminology over earlier editions.

Terms in the glossary are defined according to their specialized meaning in packaging — disregarding in some instances ordinary usage. Common definitions are provided as a standard glossary of packaging terms for all parties.

The Third Edition is a joint project of various government agencies — including Army, Navy and Air Force — working with a large number of industry participants through

the instrumentality of the Packaging Institute.

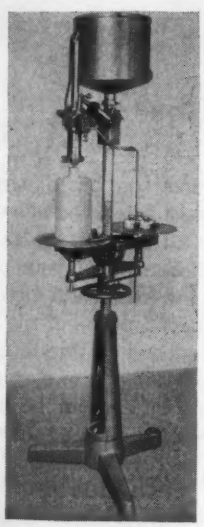
Copies, printed in loose-leaf form in accordance with government standards to fit standard three-ring binders, are available at $3.50 each through Packaging Institute, Inc., 342 Madison Ave., New York 17, N.Y.

Fills 4 oz to 5 gal with hairline accuracy

Features: As the fill nears conclusion, flow rate is automatically reduced by redesigned Monoscale Filler to minimize surging or splashing. Fill control is by weight; unit has no motors or pneumatic devices. Spout closing is positive and dripless.

Description: Speeds obtainable are 120 to 1200 containers per hr, depending upon container size, neck opening and product characteristics.

Machine has its own supply reservoir, with float-operated valve capable of withstanding 40 psi. No sliding seals or packing are used in spout assembly.



Filler also is available on low stand for bench mounting, or for convenience in handling large containers

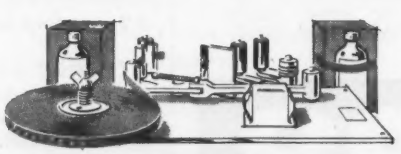
All metal parts contacting the liquid are fabricated of stainless steel, and the unit can be completely dismantled

the "matchmaker" is a SCOTCH BRAND (REG. U.S. PAT. OFF.) applicator

What do you know that *can't* be hugged together with printed, colored, or transparent "SCOTCH" BRAND Tapes and 3M-Matic equipment? Don't bet on it. Over the past several years 3M Customer Service Engineers have made a habit of getting difficult food package combinations together – and at production-line speed.

If you sense a note of assuredness in our attitude, it is only to goad you into giving us a really "impossible" combining problem.

Submit your "stumper" to your 3M Representative, nearest "SCOTCH" BRAND Tape Distributor, or to: 3M Co., 900 Bush Ave., St. Paul 6, Minn., Dept. IBC-91.



"SCOTCH" BRAND Combination Bundler Heads can be mounted singly or in pairs for all types of *togetherness* packaging at speeds up to 75 units per minute.

MINNESOTA MINING AND MANUFACTURING COMPANY

...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

© 1961, 3M CO.; "SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.

7641 on Reader Service Slip.

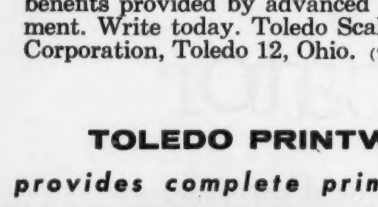
Why you should think of your scales as MONEY WEIGHING MACHINES

Cold, hard cash is the final value yardstick you must apply to every material or product that moves into, through, or out of your plant. How much does it cost? How much does it save? How much profit does it produce? In the last analysis, the answer always comes up in dollars and cents.

With dollars at stake, the *right* Toledo Scale at each weighing point is of the *utmost importance* . . . the backbone of control your needs demand. Your Toledo representative will take a personal interest in helping you get all the benefits provided by advanced Toledo methods and equipment. Write today. Toledo Scale, Division of Toledo Scale Corporation, Toledo 12, Ohio. *(Toledo Scale Company of Canada, Ltd., Windsor, Ontario.)*

TOLEDO PRINTWEIGH® "400"

provides complete printed weight records



Prints where you wish on full 8½" x 11" forms, or on tickets or strips. Prints full figures, even when unit weights are used. Positive weight identification, with selective numbering, weight symbols, or consecutive numbering. Also prints time and date, if required. Weight data may be transmitted electrically to remote adding or other office machines. Ask for Bulletin 2017.

SERVICE Factory-Trained 240 Cities

TOLEDO®

Headquarters for Weighing Systems

7642 on Reader Service Slip.

packaging

for cleaning in a few min. Spout changes can be made in 30 sec; container-size changeover in two min.

One operator can load and unload machine, with plenty of time for affixing caps or labels. Or, if preferred, one operator can handle two or more of the filling machines.

Supplier: The Karl Kiefer Machine Co., 919 Martin St., Cincinnati 2, Ohio.

7643 on Reader Service Slip.

Sets up, loads, seals varied-size end-load cases

Uses: Sysco II case set-up, loading and sealing unit can load products packaged in fibre boxes, over-wrapped multi-packs and paperboard boxes into various sizes of end-loading cases.

Features-Description: Synchronized case set-up operation insures continuity in production. Stabilizer exerts constant pressure against cases in magazine, insuring continuous supply at pick-up station.

When predetermined pressure is reached, stabilizer automatically disengages, preventing case damage.

At fill station, "fail safe" feature prevents product discharge from loader if the carriage fails to transfer a set-up case. In this event, carriage reverses, picks up an empty case and returns to loader.

Unit can be adjusted to handle half-pt, pt, qt and gal containers, with complete changeover from one size to another requiring less than 20 min.

Supplier: The Systemation Corp., affiliate of Bemis Bro. Bag Company, 408 Pine St., St. Louis 2, Mo.

7644 on Reader Service Slip.

Checkweighs packages to 12 oz at up to 200/min

Designed especially for installations where floor space is at a premium, new type of Selectrol automatic high-speed checkweigher has over-all dimensions of 20 in. deep and 22 in. long, with adjustable height of 35 to 40 in.

Model 1205-S will automat-

Protect your products with the RCA Electronic Metal Detector

There's danger to you, danger to your customers when you allow the possibility of tramp metal to threaten the quality of your products. A new low-cost RCA Detector meets the special needs of the food industry. Highly sensitive to metal particles (*non-magnetic or magnetic*), yet ruggedly built. Can be hosed down without damaging circuits. Bi-sectional construction simplifies installation around conveyor lines. With this new RCA Metal Detector you can safeguard quality and reduce the possibility of complaints for as little as $1000.

Get all the facts! Write to RCA, Dept. Z-243, Building 15-5, Camden, N.J.

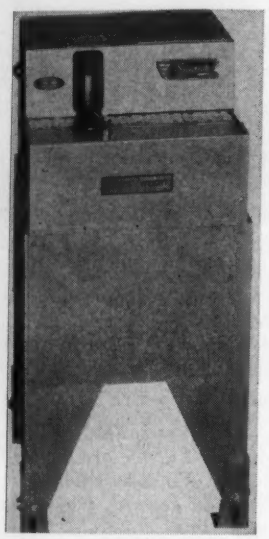
RCA® The Most Trusted Name in Electronics
RADIO CORPORATION OF AMERICA

7645 on Reader Service Slip.

ically weigh, classify and separate packages by correct weight, over weight and under weight at speeds up to 200 per min, depending on accuracy requirements and product handling characteristics.

Standard models will weigh packages in a range up to 12 oz.

Unit features a precision scale with a 1:1 ratio even-balance lever to provide high sensitivity with minimum effect from floor vibrations; fully



Scale is easily removable by slide-out construction, and hinged access panels give ready access for inspection and repair

enclosed construction with NEMA 12 rated electrical system to insure protection against dust, moisture and spilled product and a Mylar weigh belt.

Electrical output signals from the Model 1205-S may be used to remotely control machinery or production processes.

Supplier: The Exact Weight Scale Co., 541 East Town St., Columbus 15, Ohio.

7646 on Reader Service Slip.

Products & Packages pages 8, 9, 10, 11

April, 1961 Consumers Report says . . .

"The mechanisms (valves) were so designed that they could trap some topping in the nozzle where it could spoil and contaminate successive ejections."

NOT TRUE . . .

WHEN YOU USE PRECISION'S UPSIDE-DOWN VALVE

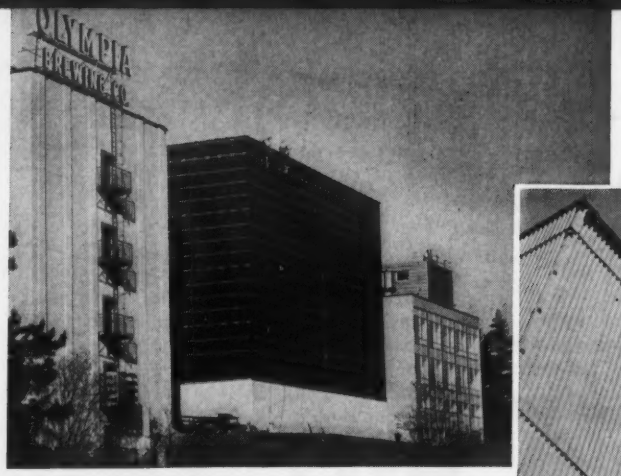
The new upside-down valve from Precision is constructed so that the spout may be opened and cleaned by merely holding it under the faucet. No contamination is then possible, and it allows complete evacuation of all the product in it's original pure form time after time.

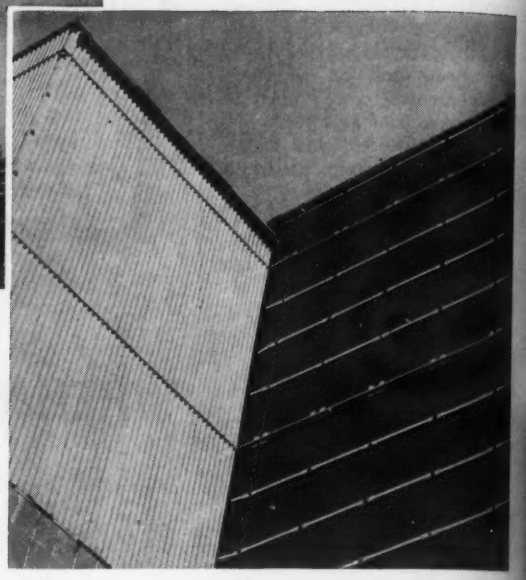
Just one more example of that extra care and attention to detail you get with all Precision valves. It's the quality and know-how that assures you of satisfied customers!

Take care, take Precision valves for your aerosol products.

PRECISION VALVE CORPORATION
700 NEPPERHAN AVENUE, YONKERS, N. Y.

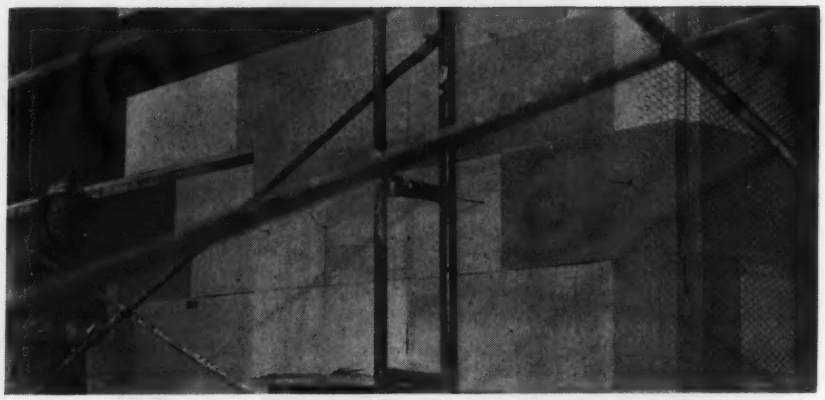
7647 on Reader Service Slip.





Proven way of insulating outside of building walls, roof . . .

Hastens use of new construction



Anodized, *0.032-gauge aluminum panels, same as used on walls at left, photo above, will cover insulation on two new walls. Ribbed panels are attached to horizontal bars, 1½ in. from insulation surface to create air space for evaporation of storm water and condensed moisture.*

To avoid damage to aluminum panels by accidents, panels start 16 ft above ground level. Bottom 16 ft and third wall will be finished with ¾-in. thick Portland cement, troweled on 1-in. galvanized stucco wire, photo at left.

Holes through which bolts for holding the horizontal bars and wires for holding the wire mesh extend are manually filled with compound of granulated foam insulation and mastic

PRESSING NEED for new facilities to become operational at earliest possible moment led Dewey Rigg, planning engineer at Olympia Brewing Co., Olympia, Wash., to adopt a building technique that shortens time for new facilities to become operational, yet meets insulation specifications.

With conventional construction methods, full-scale installation of equipment must be delayed until all insulation work is completed.

With Rigg's method, already used on three large aging and fermenting cellars, building is so designed that installation of equipment can begin as soon as it is structurally feasible. Then, instead of placing insulation on building's interior, it is placed on outside.

Since method has proven highly satisfactory, it was only natural that it would also be used in newest addition to Olympia's plant, a concrete, five-story beer cellar, 45½ by 108 ft.

Insulation envelope

Structure was designed and built so that insulation and vapor barrier form an outside envelope that seals building. Since it abuts an existing beer cellar, three walls only and roof were covered with two 2-in. layers of expanded polystyrene insulation.

On two walls, foam insulation is protected from elements by anodized aluminum panels, gold colored; on third wall, it is protected by ¾-in. thick Portland cement plaster, see photos above.

Insulation system on walls consists of cutback asphalt primer applied to concrete walls, the two layers of foam insulation, each applied with hot-melt adhesive, and a coating of fiberglas-reinforced asphalt emulsion to act as an additional vapor barrier.

Roof was prepared for insulation by applying asphalt primer, followed by asphalt-impregnated rag felt.

After hot mopping, 4-ft lengths of standard 2-in. insulation were laid, followed by 3-ft-long, 2-in.-thick sections of Roofmate insulation. Latter consists of 2-in. core of Styrofoam, enclosed in an asphalt-laminated kraft paper.

Joints between boards of Roofmate were taped, and roof was finished with one layer of 45-lb absestos felt, followed by three layers of 15-lb felt, topped with flood coating of asphalt.

Styrofoam insulation, Roofmate and Saraloy 400 are products of The Dow Chemical Company, Midland, Mich.

7648 on Reader Service Slip.

FP STAFF

Boards *for first, as well as second layer (arrow) of insulation are placed in position after hot-melt adhesive has been applied by roll coating —that is, placing intended bonding surface in contact with a motor-driven roller that passes through a reservoir of adhesive*

Flexible flashing, *Saraloy 400, being applied to parapet wall to seal joint between parapet and roof deck. Also used around vent pipes and copings, the dense sheets can be easily cut and fitted on job; will readily bond to most common building materials and to itself.*

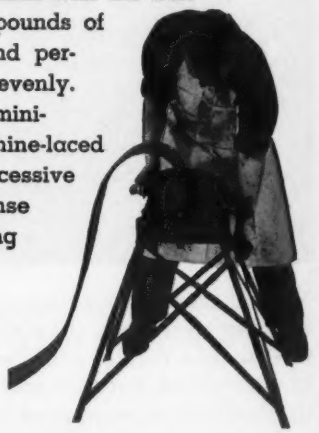
Elastic material will expand and contract with building material to which it is attached. It is self-sealing, forming a waterproof seal around nails that are driven through it

MAINTENANCE SAVINGS COME YOUR WAY with

Clipper

HOOKS and LACERS

Even on small-diameter rollers like the one shown above, Clipper machine-laced joints are smooth and flexible and give longer life. Hooks are firmly imbedded flush with the belt surfaces and clinched by up to 45,000 pounds of pressure. Double-staggered gripping and perfectly rounded loops distribute strain evenly. Wear on hooks, belts and machinery is minimized by smoothness of the Clipper machine-laced joint. There is no pounding to cause excessive wear. Save maintenance time and expense and cut unproductive downtime by using Clipper hooks and lacers.



FOR MORE INFORMATION

Detailed product information and case history examples of Clipper machine-lacing benefits are contained in Bulletin No. 157. Send for your free copy today.

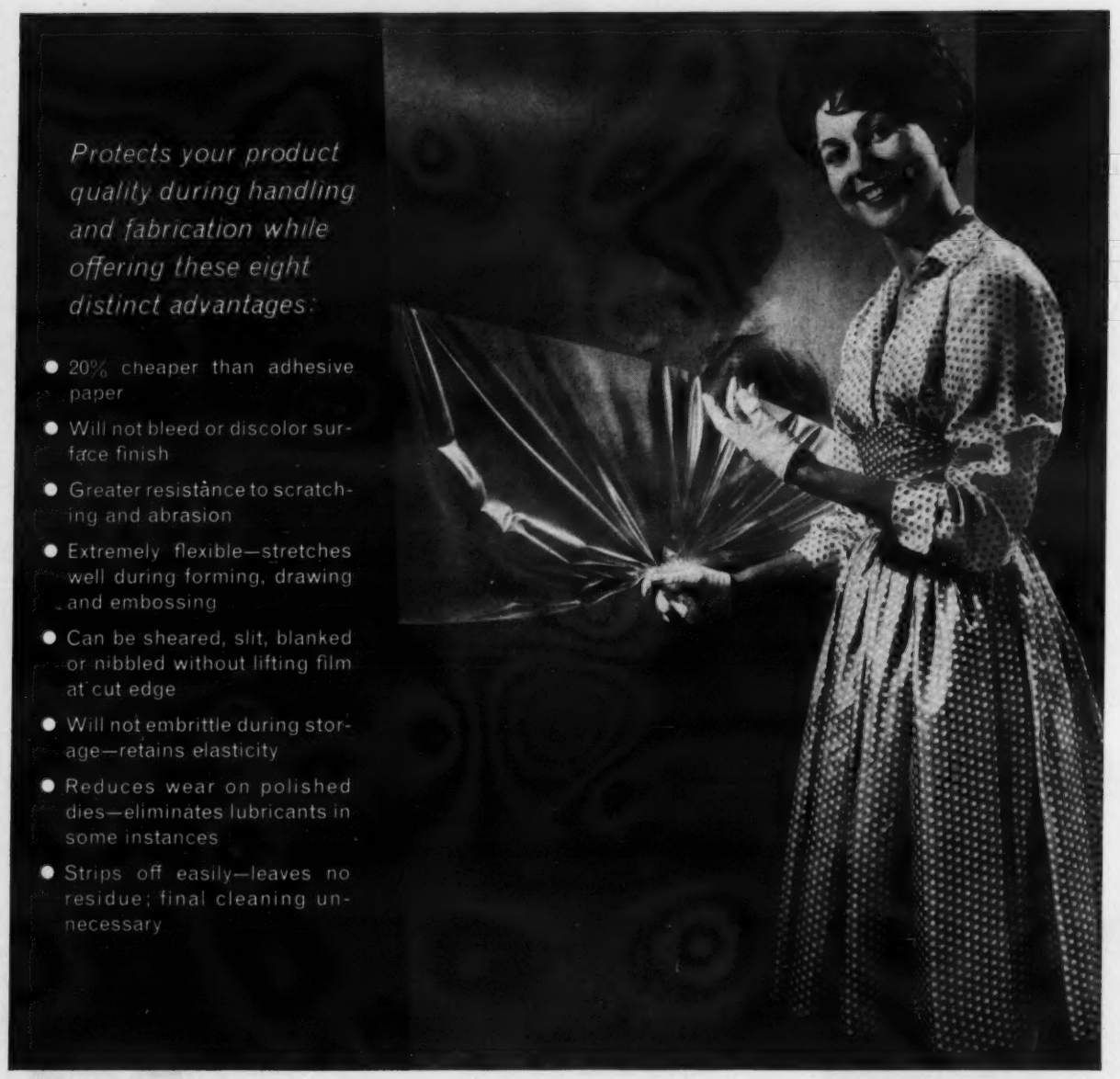
Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

972 Front Ave., N. W. Grand Rapids 2, Michigan

7649 on Reader Service Slip.

New strippable plastic film for protection of stainless steel surfaces



Protects your product quality during handling and fabrication while offering these eight distinct advantages:

- 20% cheaper than adhesive paper
- Will not bleed or discolor surface finish
- Greater resistance to scratching and abrasion
- Extremely flexible—stretches well during forming, drawing and embossing
- Can be sheared, slit, blanked or nibbled without lifting film at cut edge
- Will not embrittle during storage—retains elasticity
- Reduces wear on polished dies—eliminates lubricants in some instances
- Strips off easily—leaves no residue; final cleaning unnecessary

You get greater protection *plus* economy with the new in-fab plastic coating now being applied to MicroRold® stainless steel sheet, cut strip, and coiled sheet and strip. The semi-transparent protective film is 20% lower in cost than regular adhesive paper and offers more versatility in fabrication. The protective film is applied at our mill on customer order only, and is available on stainless steel in gages from .018″ to .050″ in widths up to 42″. It is guaranteed to strip off in one piece by loosening with fingernail at any corner.

Strippable plastic protection is intended as a safeguard only during ordinary handling, storage and fabrication—*not* as a barrier for weather, water damage, undue abrasion, impact or foreign substance. Once removed it will not adhere again.

Want more information or a test sample? Write to Product Development Dept., Washington Steel Corporation, 9-W Woodland Ave., Washington, Pa.

WASHINGTON STEEL CORPORATION

Woodland Avenue
Washington, Pa.

7650 on Reader Service Slip.

sanitation

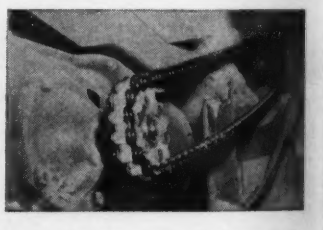
Ends habitual chain failure in freezer

Eliminates kinking, excessive wear with self-lubricating stud bushings

Problem: In its −30 F freezer, Grill Meats, Inc., Sandusky, Ohio, was experiencing trouble with its standard roller-chain drives.

Lubrication would freeze in chain joints with consequent kinking affecting chain drive and sprocket entrainment. Also, excessive wear resulted.

Solution: To end regular



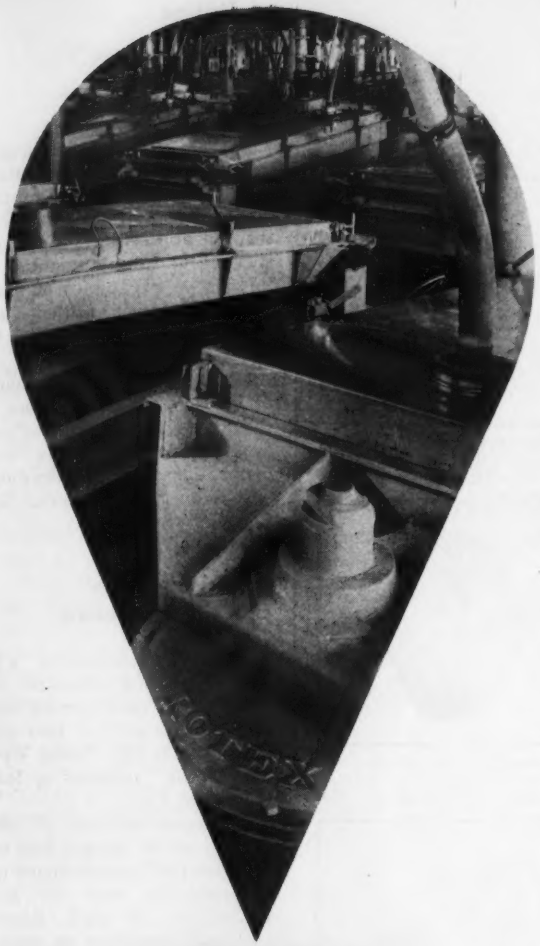
Regular chain, above, became elongated, sticky and wore excessively as a result of lubrication freezing in joints. Delrin stud-bushing chain, below, operates smoothly in −30 F freezer

replacement of chains, Grill Meats tried a steel roller chain with self-lubricating stud bushings between motor reducer and meat-patty wire conveyor.

This chain, equipped with Unisyn "Delrin" stud bushings, does not require any lubrication. It is a product of Union Chain Division of Hewitt-Robins, Inc., 664 Glenbrook Rd., Stamford, Conn.

Results: According to Robert Heenan, Grill Meat's production manager: "Excessive wear and kinking have been eliminated. Performance has been so satisfactory that we have installed chain on five different drives in freezer."

7651 on Reader Service Slip.



EFFICIENT SCREENING REQUIRED

When the process requires accurate separations and high capacity - ROTEX is installed. Reason: the ROTEX screening action stratifies materials - coarse particles float up - fines sink down and through the mesh with quick precision. Whatever the process - chemicals - food products - paper - ROTEX Screeners are there. The ROTEX installation shown is one of several in Corn Products Company plants. ■ Learn more of ROTEX - write for new Bulletin 905 describing wet and dry separations - screening action - construction - single and multiple surface models for small and large capacities. Our experienced engineers will be pleased to cooperate with you.

ROTEX®

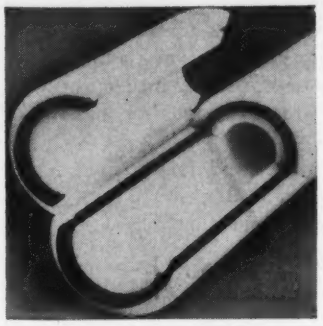
THE ORVILLE SIMPSON COMPANY... CINCINNATI 23, OHIO

7652 on Reader Service Slip.

More efficient insulation with tongue-&-groove joints

Uses: For insulating pipes or vessels in temperature range from 220 F down to 350 F.

Features-Description: Multiple-layer efficiency at single-layer cost is obtained with insulation that has tongue-and-groove joint system for superior Btu and moisture-vapor barrier at joints.



Insulation has tongue-and-groove fitting along horizontal and vertical joints

Vapo*Lock insulation is made with either styrofoam or urethane, and is resistant to mold, fungus, vermin, and sudden temperature changes.

Supplier: M M M, Inc., PO Box 2114, Houston 1, Texas.

7653 on Reader Service Slip.

Well formulated hand cleaner

For cleaning hands with or without water, lotion-type cleaner will remove grease, paint, soils and grime. It is non-toxic and non-irritating and is fortified for lasting antiseptic protection.

Conco C-1935 Waterless Hand Cleaner contains cold-cream ingredients and hexachlorophene. It is packed in 16-oz polyethylene squeeze bottles, 50-lb pails and 450-lb drums.

Supplier: Conco Chemical Co., 2411 Swiss Ave., PO Box 63, Dallas, Tex.

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DOES YOUR PLANT QUALIFY

Now is the time when public authorities are more concerned than ever with the problems of air and water pollution. Be sure your plant's problems don't result in poor community relations.

The answer: Cloroben — the economical and easily applied chemical emulsion that:

- ELIMINATES the cause of foul odors in lagoons, filters drainage ditches, etc. (Not a masking agent)
- DOES NOT AFFECT digestive bacteria but inhibits odor producing bacteria
- DISSOLVES surface and subsurface grease and slime accumulations
- PREVENTS septicity by stabilizing plant wastes
- CONTROLS many obnoxious stack odors when used as a scrubbing agent

FREE OFFER: A Cloroben "Air-Water Pollution Problem Chart" to help you survey your plant and eliminate trouble — even before it starts. Write today for your copy to Cloroben Chemical Corporation, 115 Jacobus Avenue, South Kearny, New Jersey.

CLOROBEN®

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TERRIFIC!

— and how long will the flexing member last?

Good question. The heart of Para-flex is a tire with synthetic tension members bonded together in rubber — which provides a flexing body that automatically compensates for *all combinations* of misalignment and end float, and absorbs vibration as well!

This amazing coupling has now been used in American industry 4 years. Thousands are in operation — in food processing plants, paper mills, chemical plants, textile mills, everywhere — and in these 4 years, replacements of elements have been negligible.

Dodge Standard Para-flex takes angular misalignment up to 4°, parallel misalignment up to 1/8" and end float up to 5/16" depending upon the size of the coupling and the duration of shaft displacement.

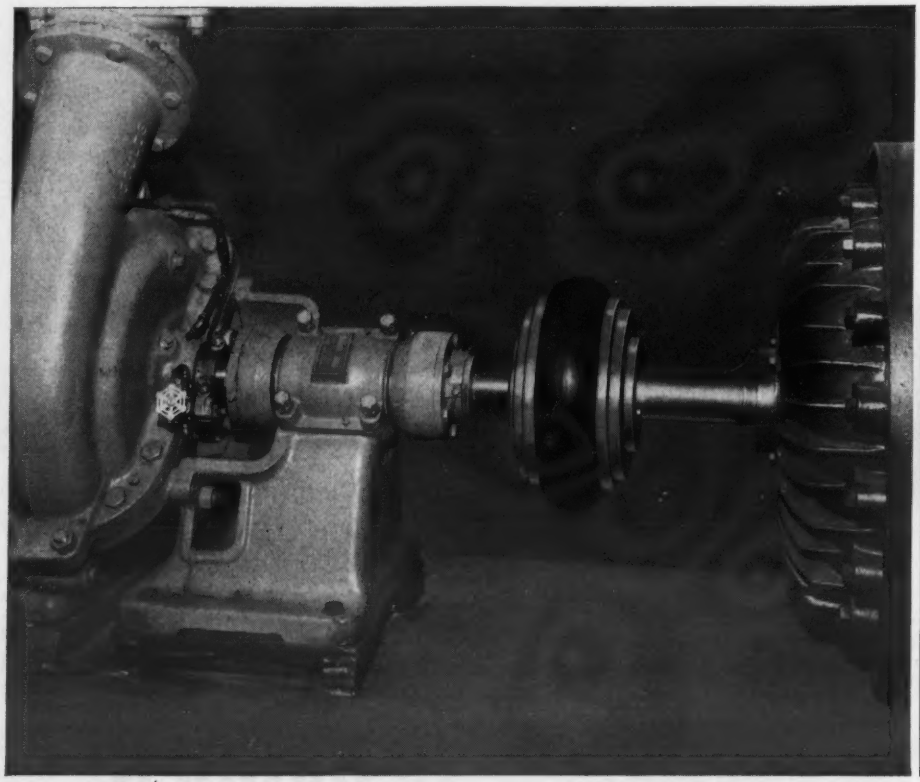
Dodge Para-flex is available in 3 types — Standard, Flywheel and High Speed (shown at right). The Standard type is stocked in capacities up to 3640 hp at 910 rpm. Ask your Dodge Distributor, or write us for complete technical bulletin.

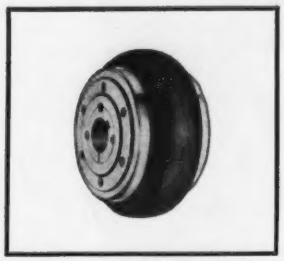
Dodge Manufacturing Corporation, 2400 Union Street, Mishawaka, Indiana

The Products with the Pluses . . .

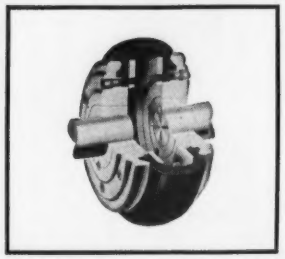
DODGE

of Mishawaka, Ind.

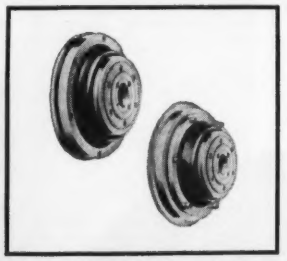




The new idea in flexible cushion couplings, with a flexing member that "swallows up" misalignment.



No lubrication, no maintenance. Replace flexing element without moving driver or driven machine.



Flywheel and High Speed Types. For use with motors and internal combustion engines turning up to 5230 rpm.

DODGE

Para-flex

CALL THE TRANSMISSIONEER, your Dodge Distributor. Look under "Dodge Transmissioneer" in the *white* pages of your phone book. Factory trained he can give you valuable assistance.

7656 on Reader Service Slip.

sanitation

Describes two floor renewal compounds

Two types of floor resurfacing compounds — No 1 for dry floors where there is heavy traffic, and No 2 for floors subject to large quantities of liquids — are topics of four-page brochure entitled Garland Chemi-top, released by The Garland Company.

Literature describes applications and characteristics of the aggregate resurfacing material, and illustrates nine properties with line drawings.

7657 on Reader Service Slip.

Troubleshooters' checklist for boilers

Handy maintenance and troubleshooting checklist for boilers and cooling-water systems forms part of four-page Bulletin CS 113, "Ionac Water Treatment," released by Ionac Chemical Co.

Checklist tabulates 23 common troubles arising from water and fuel contaminants and recommends one or more treatments for each. Reasons for such troubles as scaling, corrosion and foaming are listed.

Bulletin also discusses a five-point service program that includes laboratory water analysis, plant survey, recommendations for chemical treatment, service checkup and control aids.

7658 on Reader Service Slip.

"Having your clothes torn off in the conveyor is a poor excuse for contaminating one of our sterile drums . . ."

that's interesting

Brush-control pills

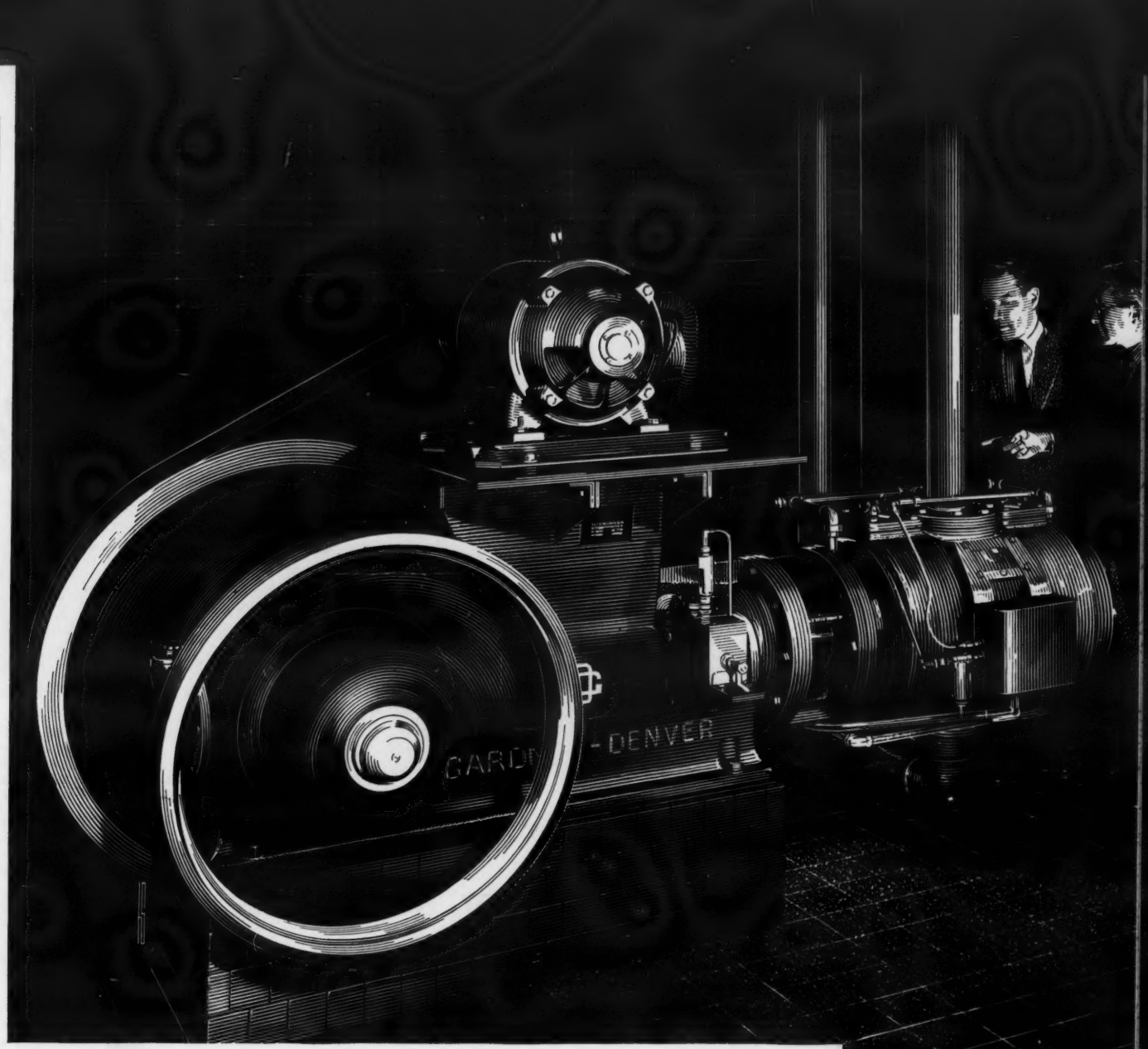
A pelleted formulation of fenuron—Du Pont's "Dybar" fenuron weed and brush killer — is easy to apply, being spread on ground at base of each brush cluster, without need for mechanical equipment.

The non-volatile pellets can be used near sensitive crops. When applied according to directions, the non-corrosive, non-flammable substance presents little or no hazard of toxicity to man or animals.

Corn (stalk) squeezins

Agricultural reseachers working with corn hybrids reportedly have discovered combinations of inbreds that will produce as much sugar per acre (in stalks) as sugarbeets.

For more information on product at right, circle 7659 see information request blank opposite last page.



"No more oil to spoil our quality"

. . . the reaction to Gardner-Denver oil-free compressors. They protect product quality by delivering pure, clean air—air that never has a drop of oil in it. So if even a trace of oil in your air line is too much, see Gardner-Denver first. Write for bulletin CRC-10.

Gardner-Denver Company, Quincy, Illinois—Offices in principal U.S., Canadian and Mexican cities
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 16, Ontario

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GARDNER-DENVER Since 1859

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER - DENVER

now... Lewis brings Stack-n-Nest® to FOOD PROCESSING

Made with

PolyLewton

(U.S.D.A.-M.I.D. APPROVED)

The remarkable new material developed especially for use in conjunction with raw foods.

- **Easy to Clean** — slick, glass-like, closed surface molded on matched dies to eliminate sharp interior crevices and corners.
- **Easy to Handle** — lightweight (only 3¾ lbs.), full perimeter, top-rim finger grips.
- **Easy to Stack** — special patented design for quick, easy stacking—empty or loaded.
- **Easy to Move** — in stacks or nests — on platform trucks or pallets — between processing operations.
- **Easy to Nest** — nesting stops minimize binding and gripping suction.
- **Easy to Install** — long life at a lower original cost compared to stainless steel.

Lower your handling costs with Lewis PolyLewton Stack-n-Nest Tote Pans . . . send for complete information.

Shipment within 24 hours from receipt of order.

G. B. LEWIS COMPANY

169 Montgomery Street • Watertown, Wisconsin

Material Handling Specialists for nearly a century

NO CREVICES

to harbor undesirable bacteria and spores

7660 on Reader Service Slip.

Fire resistant cloth filter traps soot that is loosened and collected by the specially designed tools

Cleans wet or dry surfaces throughout plant

Vaccum cleaner for:

- boilers
- overhead pipes
- Wet sumps

HIGH-CAPACITY vacuum cleaner equipment with a set of accessory tools is designed for cleaning boilers, sumps, and overhead pipes.

Heavy dirt, soot and liquids accumulate in the steel tank. Exhaust air from the steel tank is discharged through the bag filter (see photo).

Filter will trap particles as small as lamp black dust. Thus, it minimizes discharging air-born dirt.

Accessory tool kit consists of a paw tool for vacuum cleaning soot and scale from the flat surfaces in boiler fire box, expansion scraper-cones for boiler tubes ranging in size from 2½ to 4 inches diameter, a five-foot wire brush, and a 28 inch crevice cleaning tool which concentrates suction at a slot opening.

Accessory tools are made for use with either 9 or 12 gallon or the 55 gallon industrial vacuum cleaner.

Supplier: American Lincoln Corporation, American Floor Machine Co., Div., 518 So. St. Clair Street, Toledo 3, Ohio.

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4 good reasons why leading food processors select

DARNELL CASTERS & WHEELS

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Quick grease-gun lubrication provides easy maintenance.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

Send for Your FREE Copy... ***DESCRIBING OVER 4000 TYPES OF CASTERS AND WHEELS***

JUST OFF THE PRESS!

DARNELL CORPORATION, LTD.

DOWNEY (Los Angeles County) CALIF.
37-28 SIXTY-FIRST, WOODSIDE 77, L.I., N.Y.
36 NORTH CLINTON ST., CHICAGO 6, ILL.
1000 PEACHTREE N. E., ATLANTA, GA.

7662 on Reader Service Slip.

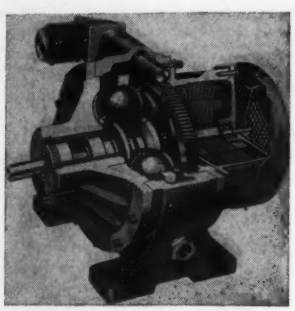
Compact variable speed drive

Transmits power through cam-positioned balls

Uses-Features: Compact variable-speed power unit is only slightly bigger than an equally rated conventional motor. It is powered by a pancake-style motor that transmits power through a system of cam-positioned balls.

Operation: Power is transmitted from motor through input shaft to a beveled drive disc that is in contact with axle-mounted drive balls. Input shaft rotation causes balls to rotate which in turn transmits power to the output shaft by a similar ball-to-disc contact (see photo).

Output speed is determined by relative length of the contact paths on input and output sides of the balls. By rotating the cam plate, the relative lengths of the two contact paths are varied to give increased or decreased ratios.



Rolling balls permit smooth adjustment of input and output speed while under a load

Description: Two styles of the Cleveland Speed Variator are available.

Style K provides a variable-speed range from 1/3 the input speed to three times the input speed. Thus, a 1150 rpm input speed produces an output speed ranging from 383 to 3450 rpm.

Style KL provides speeds ranging from 1/3 the input speed to twice the input speed. Thus with a 1150 rpm motor, output speeds may be varied from 383 to 2300 rpm.

Motors are ac radial air gap

...NEW Oakite R.B. gives you all three!

Better labeling, cleaner, brighter-looking capped cans and jars—that's the purpose of new Oakite R.B.

When you add Oakite R.B. to your cooling water and final retort rinse cycle as recommended, water spotting is reduced. Oakite R.B. "thins out water," helps rinse off your filled cans and jars faster. Surfaces dry quicker thus reducing corrosion when pH is kept at 7. Labels stick better. Oakite R.B. goes to work in concentrations as low as 1 gallon/2,000 gallons of water. Obviously economical. Oakite R.B. is infinitely soluble in both cold and hot water.

Ask your Oakite man to show you a prove-it-yourself test demonstrating the merits of Oakite R.B. Or for further details send for free Service Bulletin No. 24B to Oakite Products, Inc., 27A Rector Street, New York 6, N. Y.

OAKITE
over 50 Est. 1909 SCIENCE
years' leadership in industrial cleaning

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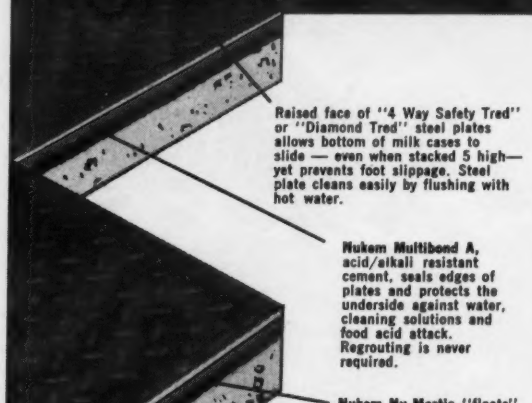
Nukem
"We felt we had to go with the best. We insisted on a Nukem steel plate floor." *
Conrad Knutson
FRANKLIN CREAMERY, INC.
STEEL PLATE FLOORS


Raised face of "4 Way Safety Tred" or "Diamond Tred" steel plates allows bottom of milk cases to slide — even when stacked 5 high— yet prevents foot slippage. Steel plate cleans easily by flushing with hot water.
Nukem Multibond A, acid/alkali resistant cement, seals edges of plates and protects the underside against water, cleaning solutions and food acid attack. Regrouting is never required.
Nukem Nu-Mastic "floats" entire steel floor on an acid/alkali resistant, flexible cushion that permanently absorbs stresses, prevents cracking.
The structural slab is completely protected and kept moisture free.

Nukem steel plate floors can be installed over either new or old floors. Approved contractors, equipped to serve you in all parts of the country, will insure your getting a genuine Nukem floor engineered to your particular needs.

Nukem

products are manufactured by

Amercoat CORPORATION

***After installing a Nukem steel plate floor 18 months ago in the cooler room of Franklin Creamery at Minneapolis, this significant and unsolicited statement is made by Mr. Knutson, Treasurer of the firm.**

MODERNIZATION ELIMINATES FLOOR PROBLEMS

Franklin Creamery's previous floor was concrete, with the exception of a small area having a quarry tile surface. Continuing difficulties with the maintenance of the concrete and tile sections prompted the selection of steel plate construction.

Prior to the installation of the Nukem steel plate floor, the services of four men (plus relief men) were required to handle production through the cooler room. In-floor conveyors and the Nukem floor have reduced this to two men—yet production has been increased!

Steel plate is the best possible flooring surface for dairy cooler rooms. It permits the installation of flush-with-floor conveyor systems, withstands the crashing impact of dropped milk cans, and allows milk cases to be skidded to and from trucks.

Proper engineering—and materials developed specifically for this type of installation—are absolutely necessary. Improperly designed steel plate floors result in continuous headaches. For example, if plates are laid directly on concrete, expansion and contraction will eventually cause the plates to buckle and loosen. Milk, water and cleaning compound seep beneath the plates; this results in bacteria growth, sour odor, poor sanitation, attack on the concrete slab, constant maintenance problems, and possible replacement of the entire floor.

Nukem has led the field in the development and refinement of steel plate floors. Only Nukem designs each floor to meet individual plant requirements. This essential service costs no more. That's why the list of Nukem users reads like the Blue Book of industry.

That's why Mr. Knutson says, "Modernization of our operation prompted our decision to install a steel plate floor. In doing so, we felt we had to go with the best. We insisted on a Nukem steel plate floor."

Write for complete technical data

AMERCOAT CORPORATION, Dept. WU, 4809 Firestone Blvd., South Gate, Calif.

2404 Dennis Street, Jacksonville, Florida | 921 Pitner Avenue, Evanston, Illinois | 111 Colgate Avenue, Buffalo 20, New York | 360 Carnegie Avenue, Kenilworth, New Jersey | 6530 Supply Row, Houston 11, Texas

7664 on Reader Service Slip.

design and conform to NEMA design B specifications. Standard units are available with ratings ranging from 1/3 to 15 hp.

Supplier: Eaton Manufacturing Company, Cleveland Worm & Gear Division, 3249 East Eightieth Street, Cleveland, Ohio.

7665 on Reader Service Slip.

Compressor valves — key to good performance

Operation and importance of valves in modern reciprocating compressors are described in 44-page booklet, Questions and Answers about Valving — the Heart of the Compressor, released by Ingersoll-Rand Company.

Literature, Form 3222, details demands made on valves and their function in a compressor: they must open and

Opening impact — cause of most breakage and noise in compressor valving

close up to 60,000 times per hr; they often must perform in an atmosphere of dirty or corrosive gases.

Booklet traces the evolution of valving from mechanically operated intake valves and heavy poppet discharge valves of the 19th century to modern high-speed, air-cushioned valves.

There is also a section devoted to procedures and equipment used in manufacturing valves. Cartoons and cut-away drawings are used throughout booklet to illustrate valve components and mechanics.

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Simplifies fabrication of jacketed insulation for angles and fittings

Job-site fabrication of aluminum-jacketed insulation for elbows, sweeps and bends directly from straight lengths is now possible with preformed band called Miter Seal. Developed for use with Metal-On insulation, method of using band eliminates various operations usually necessary for insulating fittings.

Technique consists of cutting straight lengths of jacketed insulation with an ordinary saw and then applying the preformed bands at joints with a J-M banding wrench.

Complex pipe run illustrates how straight sections of jacketed insulation can be used for angles with preformed bands. Close-up shows how band is applied

Instructions furnished indicate precise measurements and angle cuts to be made with each pipe size and insulation thickness.

Metal-On insulation system consists of Thermobestos, isolation barrier and aluminum covering, all prefabricated for application in one step. Insulation and bands are available for pipe from ¾ in. up to 24 in. Insulation ranges from 1 in. to 3 in. in thickness.

Supplier: Johns-Manville, Insulation Division, 22 E. 40th St., New York 16, N.Y.

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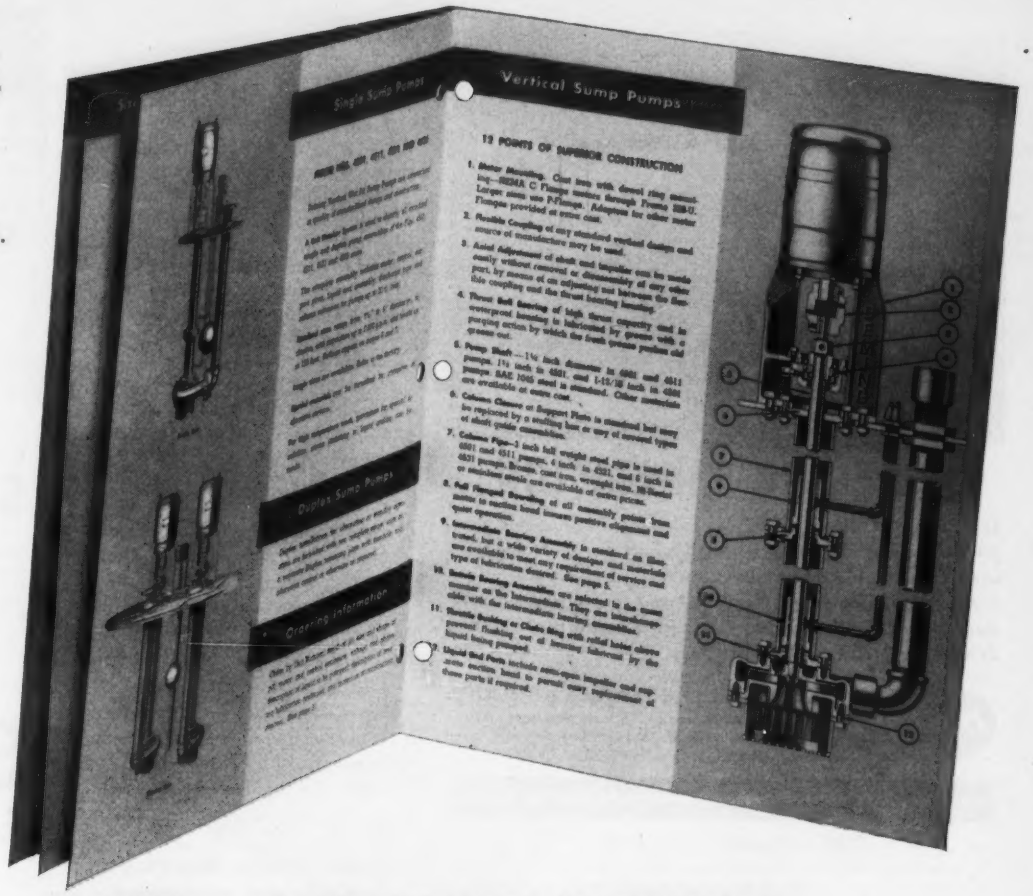
Three methods for easier refuse collection

New methods for cutting operational costs of waste and refuse collection are designed to prevent obsolescence of equipment now in use.

In four-page Folder No 6073, available from Dempster

Your specification job is made easier if you have complete information on pumps. Deming bulletins give full technical data on: capacities, heads, construction, dimensions, and performance curves.



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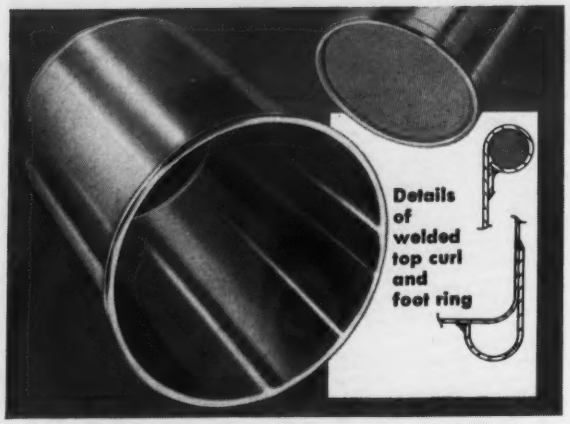

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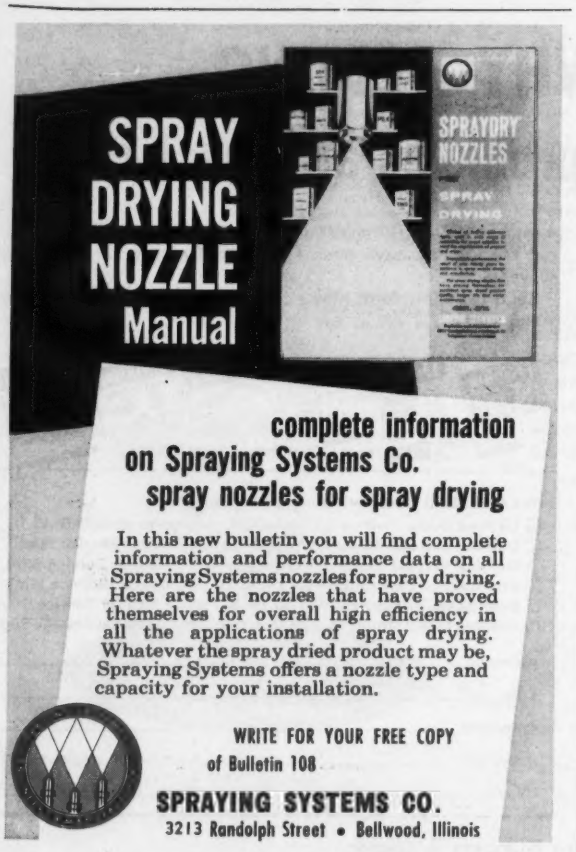
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Supplier: Pipe Line Chemical Company, PO Box 1062, Dallas 21, Texas.

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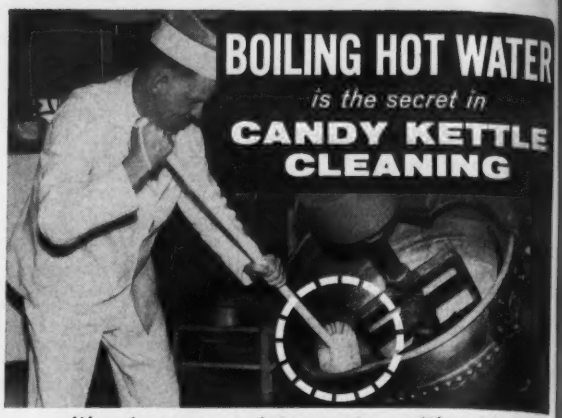

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that's interesting

Supplements pay way

When cattle and hogs are fed protein supplements, gain in weight is more than enough to pay the extra cost, according to Livestock Specialist G. R. Carlisle of University of Illinois

In one trial, cattle gained ¾ lb more per head daily when they received a protein supplement. In this case, each supplement dollar returned $2.85.

An average of 13 Corn Belt tests showed that pigs on supplement each gained ½ lb more daily while gleaning cornfields, each bushel of corn produced 4.5 more lb of pork and each lb of supplement saved 6.4 lb of corn.

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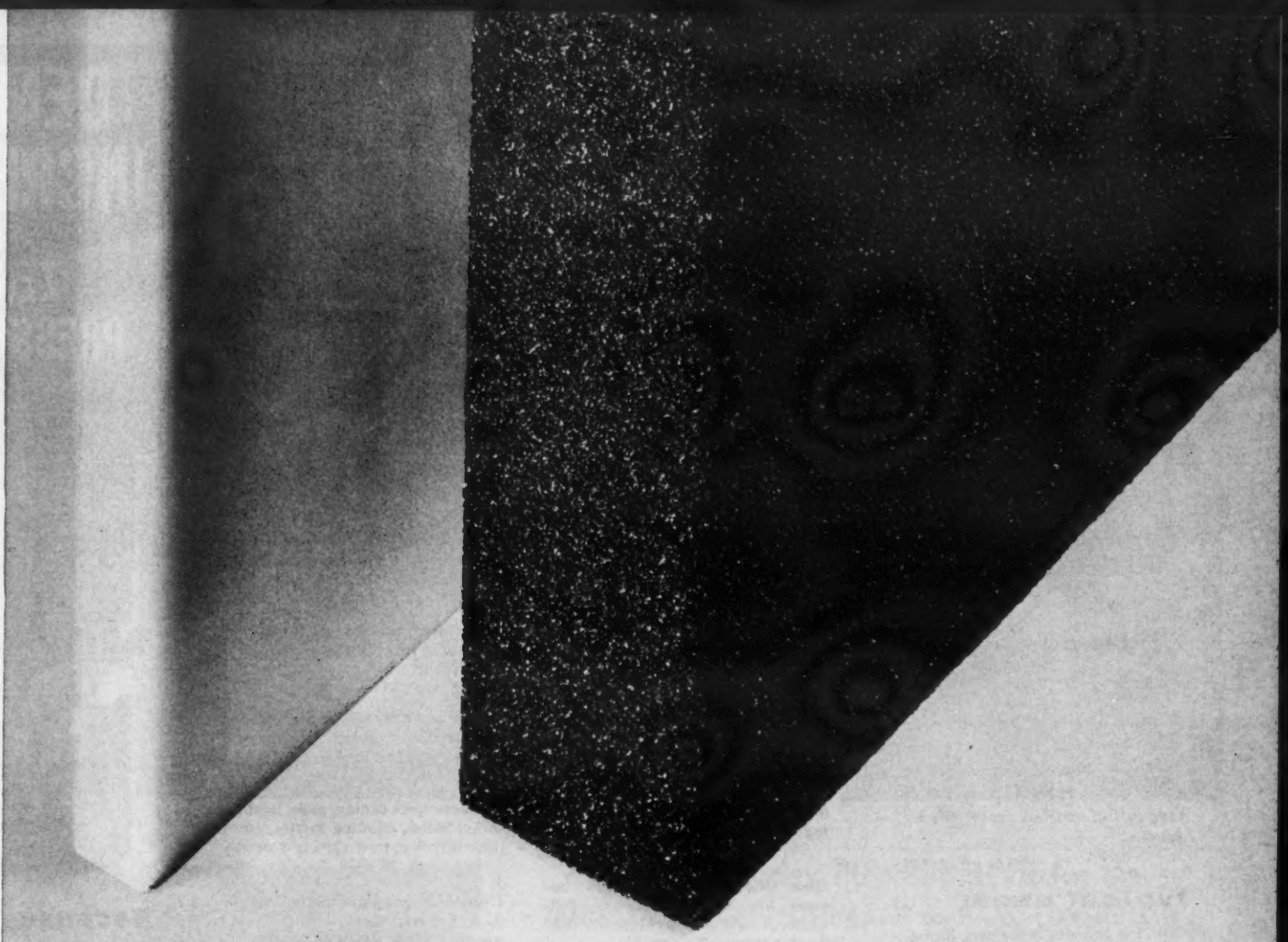

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The key to the new system is FOAMTHANE with a K-factor of just 0.15°+40° to 70° mean. This means you need less insulation thickness to maintain a given operating temperature.

For example, Merchants Refrigerating Company's Frozen Food City, Secaucus, N. J., uses the FOAMTHANE-FOAMGLAS combination to hold warehouse temperature at a constant —10°F below zero. Instead of a usual 8″ of insulation on the roof, Merchants used 3″ of FOAMGLAS to gain the added benefits of incombustibility and extra compressive strength and 2″ of FOAMTHANE, which in combination with FOAMGLAS achieves accurate temperature control. The insulation envelope was completed with walls (photo at right) of strong, rigid FOAMGLAS which represented additional savings by the elimination of masonry structure. Only a thin panel "veneer" was used to provide exterior protection.

For more information, write to: Pittsburgh Corning Corporation, Department FP-91, One Gateway Center, Pittsburgh 22, Pa. In Canada: 3333 Cavendish Blvd., Montreal, Quebec.

Free-standing walls of FOAMGLAS enabled Merchants to save construction money and insure the proper insulation envelope.

FOAMTHANE-FOAMGLAS combination applied to roof of Merchants Frozen Food warehouse with minimum labor and handling time.

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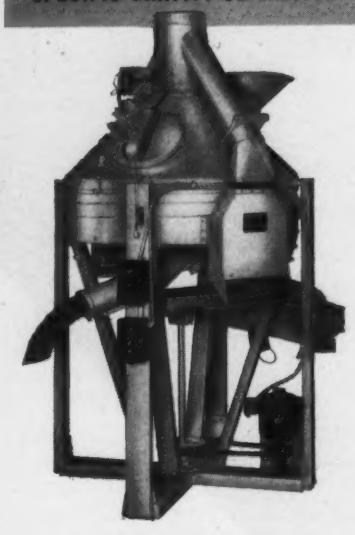

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Cleaning peanuts, fancy nuts, grains, cereals, beans, dry onion skins, etc. Separating corn germ and grit, soybean hull and meat, cocoa nibs and shells, etc. Assures a cleaner end product with more sales appeal.

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Removes foreign material, chaff, twigs, shell fragments, string, small nuts in the shell, even dust and skins! Also stones, mud balls, glass, wire and other tramp metal thus protecting processing equipment from damage.

Send for complete information.

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technical literature Classified Listing

- **Equipment**
- **Ingredients**
- **Supplies**

Starred (*) items below have been more extensively reviewed elsewhere in the magazine. Key numbers in the last line will help to locate these reviews, which are numbered in sequence. Items followed by (†) indicate literature offered by advertisers — see Advertisers Index, page 161.

Processing Equipment, Accessories

Continuous freeze drying; vacuum pumps*, (8-page Bulletin G18 on freeze drying of foods and 4-page catalog on vacuum pumps) LaPine Scientific Company
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Freeze dryers for laboratory, pilot plant in three sizes*, 4 pp, (Brochure) RePP Industries, Inc.
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Homogenizers and homogenizing valves, describes and illustrates features and lists specifications*, 6 pp, (Bul N-1-100) The Creamery Package Mfg. Company
7551 on Reader Service Slip.

Automatic-feed meat grinders for pre-cutting, coarse and fine grinding†, Koch Supplies, Inc.
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How "No-Frost" freezers give constant low temperature and full, uniform cold air circulation†, (Bul 144) Niagara Blower Co.
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Buflovak atmospheric and vacuum dryers†, (Cat 380 on dryer line; Fact Sheet on dryer installation at Heinz; Cat 381 on engineering laboratory services) Blaw-Knox Co.
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Stainless steel food containers — 30 and 55-gal sizes†, (Bul SS) Pressed Steel Tank Co.
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Solving liquid-waste problems with high-energy "NRM" vibrating screens†, (Book 2777) Link-Belt
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Kettles, corrosion-resistant, lists five styles and specifications, 4 pp, (Bul LM-100) Lee Metal Products.
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Refrigeration fundamentals for frozen-food processing plants, 4 pp, (Reprint) Freezing Equipment Sales, Inc.
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Double-ribbon blender in 13 models, 4 pp, (Brochure) The Falcon Manufacturing Div. of First Machinery Corp.
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Sanitary multi-process tanks, designed for vacuum or pressure, 2 pp, (Bul B-1-190) The Creamery Package Mfg. Company
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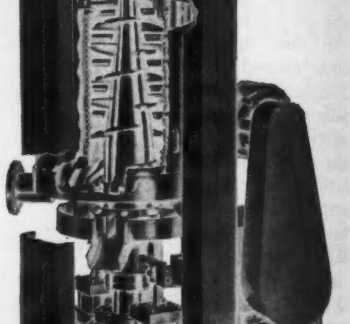

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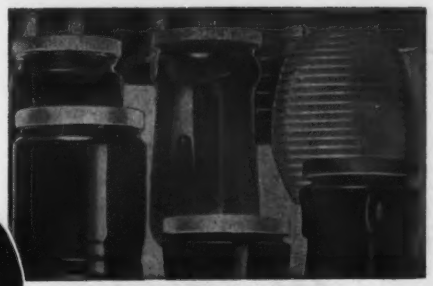

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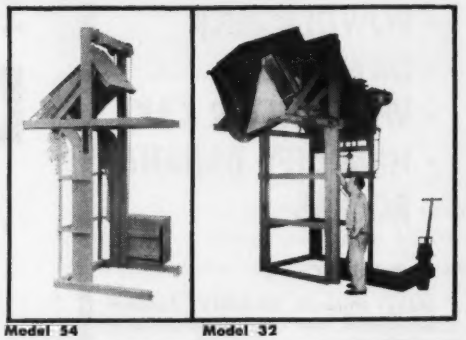

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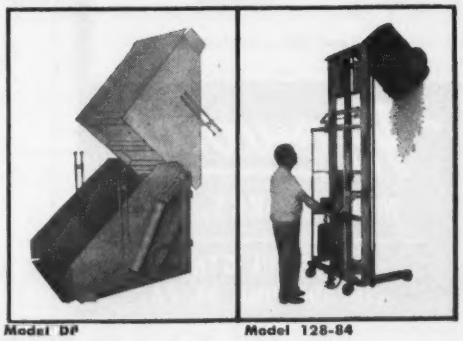

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Vibratory material handling equipment, 72 pp, (Cond. Cat 616) Syntron Co.
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Sanitary food-handling belts and special handling accessories*, 12 pp, Burrell Belting Co.
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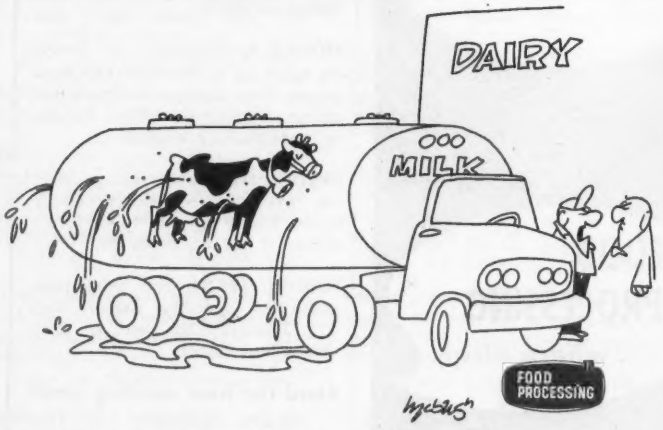

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Selecting the right shipping container for your product*, 34 pp, Olin Mathieson Chemical Corporation.
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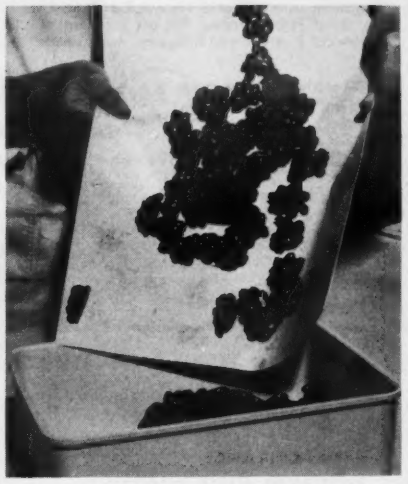
Fully-powered steel strapping with A4 Pneumatic Steelstrapper, 8 pp, (Bul AD-251) Acme Steel
7735 on Reader Service Slip.

SILICONE NEWS from Dow Corning

Sticky...but can't stick!



Even sticky peanut clusters don't stick to Syl-off coated paper.

How to improve packaging and processing of sticky products

When a product "sticks" around, it doesn't always make fast friends. Sometimes it makes trouble . . . slows production . . . boosts costs. And in the end, your customer may be unhappy. But no matter how sticky your product, you can keep it from sticking by using processing and packaging papers coated with Syl-off®, the new silicone release coating.

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Aid labelling, too. Pressure-sensitive labels, decorative trims, decals and similar selling or identification aids peel away from Syl-off coated backing papers without tearing or shredding . . . without loss of adhesive. Result: easier application; a neater job; more effective use of pressure-sensitive promotional material. No matter how sticky your product—or your problem—there's a Syl-off coated paper or paperboard available that will help you process or package more profitably. Write today for list of approved mills and converters.

For detailed information plus a list of sources of Syl-off coated papers, write Dow Corning Corporation, Dept. 4921, Midland, Michigan.

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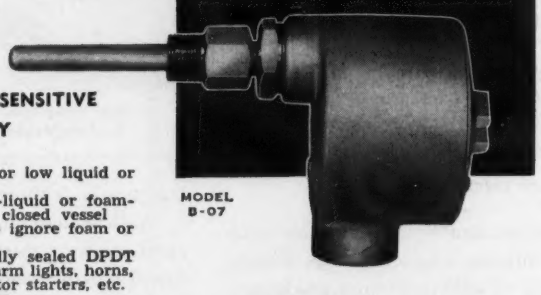

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B-06 — self-contained, general purpose, tank-side mounting

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new literature

Air-powered fastening and stapling equipment, 20 pp, (Cat No. 11) Signode Steel Strapping Co.
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Low-cost automatic timer for palletized loads, 2 pp, Lathrop Paulson Co.
7740 on Reader Service Slip.

Fork Trucks and Accessories

"Special" electric industrial trucks — their role in diverse operations*, 12 pp, Elwell-Parker
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Line of gas- and electric-powered lift trucks — illustrations and specifications, 20 pp, (Bul SP 4070) Clark Equipment
7741 on Reader Service Slip.

Over-the-Road Trucks

Mechanical hinged dockboards with seven-ft width, 2 pp, (Bul SB 811) Kelley Co.
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Truck-refrigeration units — small-, medium-, high- and super-capacity types, (Foldout Bul 2115) Thermo King Corp.
7743 on Reader Service Slip.

Route system map of the U.S., Consolidated Freightways
7744 on Reader Service Slip.

Controls, Regulators, Indicators

Disc feeder for continuous metering of powders, granular materials*, 4 pp, (Ref. No. 22-01.20-1) B-I-F Industries
7543 on Reader Service Slip.

Automatic milk gauge — dial type in waterproof housing†, (Bul 833) Liquidometer Corp.
7745 on Reader Service Slip.

Instruments for process control†, (Thermometers, Cat 155; Temperature and pressure regulators, Buls 114C, 116) Manning, Maxwell & Moore
7746 on Reader Service Slip.

Counters — mechanical and electric bottles and cans, cases, etc.†, (Cat 51-55) Durant Mfg. Co.
7747 on Reader Service Slip.

Nuclear gauges for process measurement and control*, Ohmart
7748 on Reader Service Slip.

Control systems for the food processing industries†, (Cat 500) Taylor Instrument Companies
7749 on Reader Service Slip.

Industrial liquid flow meters from ½ to 2 in., described and illustrated, 8 pp, (Bul P&I-666) Rockwell Manufacturing Company, Industrial Meter Div.
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Industrial floor maintenance — information and aid to systematic programming†, (10-pp booklet; bulletin) Oakite Products
7751 on Reader Service Slip.

Automatic water softeners, nine sizes from 20,000 to 750,000 grains, 4 pp, (Cat No. 248) E. W. Smith Chemical Co.
7752 on Reader Service Slip.

Maintenance

Compressor valves, describes their operation and importance*, 44 pp, (Booklet) Ingersoll-Rand Company.
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Floor coatings, for heavy traffic and for wet floors*, 4 pp, (Brochure) The Garland Co.
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Water treatment, checklist for boiler, cooler-water system troubles*, 4 pp, (Bul CS 113) Ionic Chemical Co.
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Process Equipment Division—Louisville Dryers
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Reply to CL-924, Food Processing
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Submit your resume in confidence with a statement of earnings' history, salary requirements and occupational goals.

Box 8 Q 238, Food Processing
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new literature

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Two motor-selection charts in current motor-application guide, 16 pp, (Bul 010) Century Electric Company
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Creative frame building — storage racks, tables, platforms, carts, etc. — using AIM Brand Slotted Angle, 24 pp, (Bul AD-410) Acme Steel Co.
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FES-Fuller rotary booster systems†, Freezing Equipment Sales
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Casters and wheels — over 4000 types described†, (Manual) Darnell Corporation
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Overhead electric traveling cranes, Series "D" — including components and specifications, 20 pp, (Bul 15005-1B-61) Manning, Maxwell & Moore
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Casters and wheels — including sealed polyurethane types for food processing applications, 36 pp, (Cat CW-61) Saginaw Products Corporation.
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the right kind, the right size, the right style
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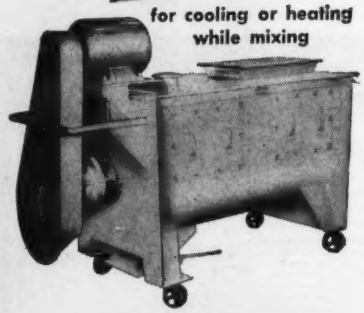

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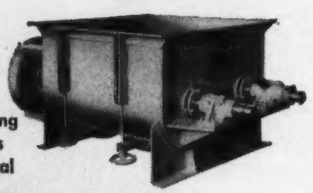

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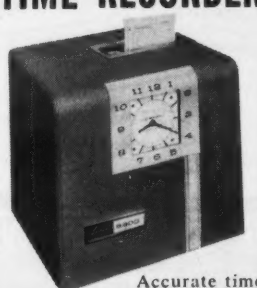

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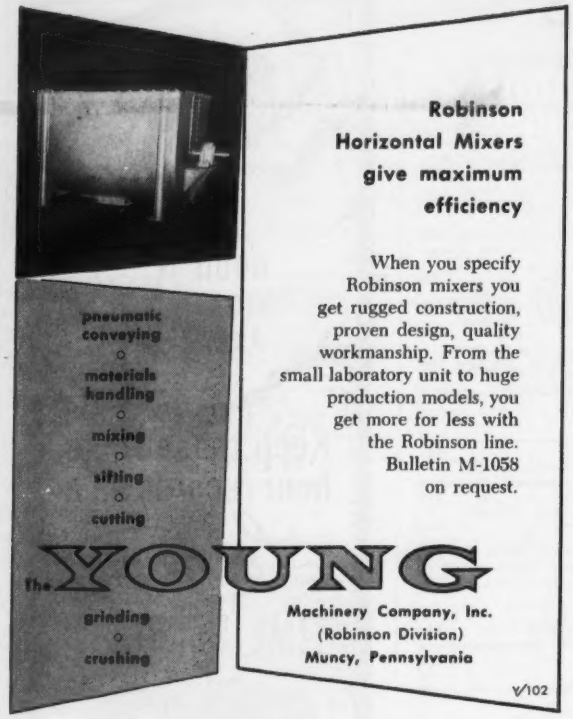

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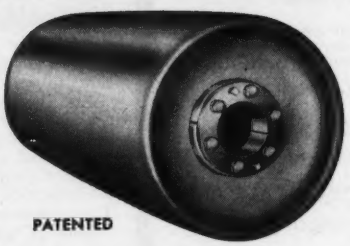
"SPUN END" CONSTRUCTION—Eliminates weldments in areas of high stress concentration, a major source of fatigue, warping and trouble. "Spun End" construction allows the placement of maximum metal thickness at end plate bore reducing unit pressures of radial loads while providing thin plate flexibility to accommodate shaft deflections.

CURVE CROWN DESIGN—Accurately formed CURVE CROWN on outer ends of rim eliminates conventional center peak—a high point for belt stretch and wear—while increasing belt training effect more than 100%.



SQUEEZE LOCK HUB—Design effectively transfers loads from rim to hub and from hub to shaft. Hub provides for full torque transmission without the use of keyways and eliminates distorting loads against pulley "Spun End." The SQUEEZE LOCK Hub exerts locking forces in two directions—to both shaft and pulley end plates—through a self-contained hub.

S-A

WRITE FOR BULLETIN 1160

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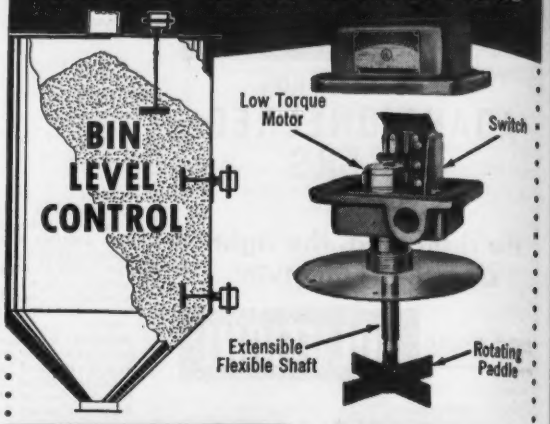

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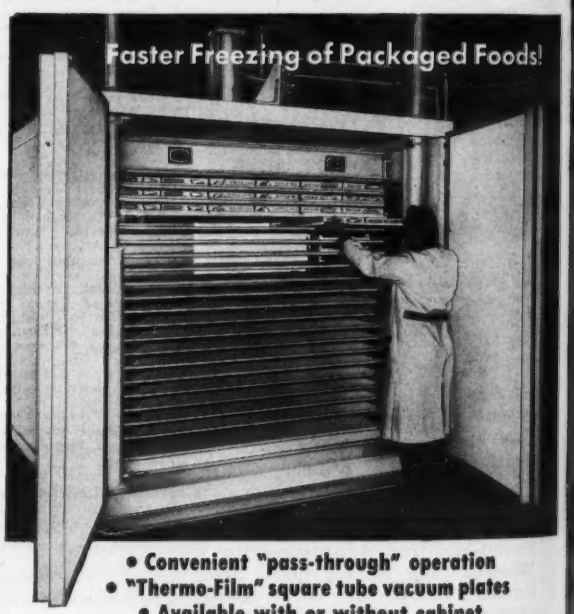

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